S. Hrg. 100-225, Part 2

# RESOURCE CONSERVATION AND RECOVERY ACT—OVERSIGHT

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# HEARINGS

BEFORE THE

SUBCOMMITTEE ON HAZARDOUS WASTES AND TOXIC SUBSTANCES

OF THE

COMMITTEE ON
ENVIRONMENT AND PUBLIC WORKS
UNITED STATES SENATE

ONE HUNDREDTH CONGRESS

FIRST SESSION

AUGUST 6; OCTOBER 1; AND DECEMBER 3, 1987

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# CONTENTS

---

August 6, 1987

## OPENING STATEMENTS

Page

Baucus, Hon. Max, U.S. Senator from the State of Montana ........ 1

Lautenberg, Hon. Frank R., U.S. Senator from the State of New Jersey ........ 61

Reid, Hon. Harry, U.S. Senator from the State of Nevada ........ 3

## WITNESSES

Commoner, Barry, Center for the Biology of Natural Systems, Flushing, NY ........ 11

Written statement ........ 74

Deieso, Donald, assistant commissioner, New Jersey Department of Environmental Protection, Trenton, NJ ........ 23

Written statement ........ 126

Gagliardo, Michael, Northeast Maryland Waste Disposal Authority, Baltimore, MD ........ 21

Written statement ........ 120

Herz, Michael, staff attorney, Environmental Defense Fund, New York, NY ........ 59

Written statement ........ 149

Loon, Deborah, Citizens League, Minneapolis, MN ........ 41

Letter to Senator Baucus ........ 45

Nosenchuck, Norman, Director, Division of Solid and Hazardous Waste, New York State Department of Environmental Conservation, Albany, NY ........ 32

Written statement ........ 139

Parker, Lorie, waste reduction manager, Department of Environmental Quality, Portland, OR ........ 29

Pollock, Cynthia, Worldwatch Institute, Washington, DC ........ 7

Prindiville, Sheila, National Solid Wastes Management Association, Washington, DC ........ 13

Written statement ........ 104

Salerni, Eugene, Legislative Commission on Solid Waste Management, Albany, NY ........ 5

Written statement ........ 67

Schmertz, Herbert, Public Affairs, Mobil, Inc., New York, NY ........ 39

Wright, Tom, Rhode Island Solid Waste Management Center, Providence, RI ........ 25

October 1, 1987

## OPENING STATEMENTS

Baucus, Hon. Max, U.S. Senator from the State of Montana ........ 171

Chafee, Hon. John H., U.S. Senator from the State of Rhode Island ........ 177

Lautenberg, Hon. Frank R., U.S. Senator from the State of New Jersey ........ 173

Reid, Hon. Harry, U.S. Senator from the State of Nevada ........ 178

## WITNESSES

Cavaney, Red, president, American Paper Institute ........ 199

Written statement ........ 310

Edgren, John, The Ecology Center ........ 179

Written statement ........ 242, 254

Freeman, Lewis, vice president, Government Affairs, Society of Plastics Industry, accompanied by Pat Toner, technical director ........ 202

Written statement ........ 331

Page
Grego, James, divisional vice president, Browning-Ferris Industries 183
Written statement 274
Liss, Gary, solid waste program manager, San Jose, CA 181
Written statement 264
Moore, Patricia, director, Wilton Solid Waste District 175
Written statement 219
Nord, Becky, secretary/treasurer, Midwest Paper Stock, Inc 174
Written statement 212
Sappington, Michael, Secondary Lead Smelters Association 204
Written statement 344
Schlieper, Hank A., Asarco, Inc 196
Written statement 292, 306
Schmidt, Irene, Alcoa Recycling Co 200
Written statement 324
Letter to Senator Baucus 328

## ADDITIONAL MATERIAL SUPPLIED FOR THE RECORD

National Recycling Coalition, Inc., brochure from 235

Statements:

Can Manufacturers Institute 352
Glass Packaging Institute 356
World Resources Co 366

## DECEMBER 3, 1987

## OPENING STATEMENTS

Baucus, Hon. Max, U.S. Senator from the State of Montana 369
Graham, Hon. Bob, U.S. Senator from the State of Florida 375

## WITNESSES

Chertow, Marian, president, Connecticut Resources Recovery Authority 402
Written statement 575
Galle, Virginia, member, Seattle City Council, chairperson, Environmental Management Committee 389
Written statement 522
Hansen, Frederick, director, Oregon Department of Environmental Quality; accompanied by Michael Downs, administrator, Hazardous Waste Division 385
Written statement 500
Jorling, Thomas, commissioner, New York State Department of Environmental Conservation 387
Written statement 513
Porter, J. Winston, Assistant Administrator for Solid Waste and Emergency Response, Environmental Protection Agency, accompanied by Marcia Williams, Director, Office of Solid Waste, and Frank Blake, General Counsel 371
Written statement 412
Responses to pre-hearing questions 434
Roth, Hon. William V., U.S. Senator from the State of Delaware 382
Ruvin, Harvey, commissioner Dade County Board of Commissioners, president, National Association of Counties 397
Written statement 532
Vardy, Peter, chairman, Institute of Solid Waste Disposal, National Solid Wastes Management Association 401
Written statement 545
Vasuki, N.C., general manager, Delaware Solid Waste Authority 383
Written statement 486
Warren, Jacqueline, director, toxic substances project, Natural Resources Defense Council accompanied by Bradford Sewell, science associate 404
Written statement 581

## ADDITIONAL STATEMENTS SUBMITTED FOR THE RECORD

Environmental Defense Fund 595
Waste Management, Inc 601, 669

# RESOURCE CONSERVATION AND RECOVERY ACT—OVERSIGHT

## Municipal Solid Waste Management

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THURSDAY, AUGUST 6, 1987

U.S. Senate,
Committee on Environment and Public Works,
Subcommittee on Hazardous Wastes
and Toxic Substances,
*Washington, DC.*

The subcommittee met at 9:37 a.m., in room SD-406, Dirksen Senate Office Building, Hon. Max Baucus (chairman of the subcommittee) presiding.

Present: Senators Baucus, Lautenberg, Reid, Durenberger, and Chafee.

### OPENING STATEMENT OF HON. MAX BAUCUS, U.S. SENATOR FROM THE STATE OF MONTANA

Senator Baucus. The hearing will come to order. Several months ago, the story of the wayward Long Island garbage barge heightened the public awareness of the Nation's growing problem with solid waste.

However, we are faced with a problem that is more complicated than simply finding a place to stash waste. We Americans have mastered the process of "taking out the garbage". In New York City, for example, the 24,000 tons of garbage collected every day is in a covered landfill within 12 hours.

We have developed an extraordinary system in this country for disposing of garbage. Yet the days of "out of sight, out of mind" are decreasing. We are running out of places to put our trash, and we are learning that the city dump has more to it than just a bad smell.

However, our garbage contains many dangerous substances: Mercury, CFCs, cadmium, lead, ammonia and others. At home, these problems don't pose a significant health hazard, but combined with the trash of many homes and many communities and many cities, it is a serious health risk and an environmental crisis that is waiting to happen.

For example, 180 sites on the national priorities list slated for cleanup under the Superfund program are municipal landfills. That is nearly one-fifth of all the Superfund sites. In a recent EPA study of 48 organic constituents found in municipal landfills, 39 are

EPA priority pollutants and 27 are on the proposed CERCLA NPL list of the 100 most dangerous chemicals. In short, as the mountains of garbage grows, so, too, does the concentration of hazardous chemicals and substances. The threat from hazardous waste is no longer confined to the chemical waste site; we now have to turn our attention toward the city dump.

Frankly, this won't be easy to solve. We already are running out of places to put the garbage, and we have learned that some waste recovery methods have created new environmental problems. Incineration, for example, without proper controls, actually concentrates the hazardous waste in garbage into dangerous ash residue.

There are also other serious waste problems lurking in municipal landfills. In 1984, Congress exempted some industrial sites from the rigid requirements of subtitle C, but this 1 million metric tons of small quantity generator waste, largely in the form of solids and sludge, largely ends up in city dumps.

Even so-called nonhazardous industrial waste contains materials that EPA itself describes as being extremely toxic. At least some portion of the 976 million metric tons produced yearly makes its way into municipal landfills.

But all this says to us is that the boundaries between federally regulated hazardous waste and State-regulated municipal waste are becoming blurred and hazy. We can no longer draw a hard, fast line between the two.

Since the Federal Government has had a longstanding responsibility for dealing with hazardous waste, we need to focus more attention on the problems of municipal landfills. We need to form a partnership with the States to deal with the problem of hazardous waste that is under subtitle D class waste.

In developing this relationship, I believe we need to keep three points in mind: First, we must try to find less hazardous substances than are now used in household products. There needs to be a greater Federal commitment to reducing these hazardous wastes at the source.

Second, we need to put more effort into recycling. Recycling will help ease the space crunch for dumps. The Federal Government should take the lead in using the recycling of materials by modifying Federal procurement policies, by increasing public education and ensuring that markets exist for recycling materials.

Third, we need better management of the remaining wastes for which we cannot find substitutes or cannot recycle. Landfills and incinerators are an important part of our Nation's waste management system. Protecting goundwater from landfills and controlling air emissions from incinerators must also be parts of our national solid waste management policy.

We have a serious problem in hazardous waste in America's landfills, but the Federal Government has amassed a great deal of experience and knowledge on how to cope with hazardous wastes. We need now to pool those resources with those of the States in a concerted effort to protect the public from this growing hazard. The simple scene of a family member taking the trash out to the curb once a week is no longer as innocent as it looks.

The problem of solid waste disposal and hazardous waste contamination in landfills and their surrounding environments demands our immediate attention and long-term commitment to the solution.

I intend to continue working on that today and in the future. I want to thank our witnesses for coming today and contributing their experience and expertise so together we could find a mutually satisfactory resolution.

Before I begin, I would like to ask the Senator from Nevada, Mr. Reid, if he has a statement.

## OPENING STATEMENT OF HON. HARRY REID, U.S. SENATOR FROM THE STATE OF NEVADA

Senator Reid. Mr. Chairman, I do. I want to first congratulate you for holding these hearings. I am happy that the committee is examining the manner in which we dispose of our waste. This Nation lacks a long-term plan to deal with our solid waste.

I am hopeful today that our witnesses will help us arrange some development of a sensible response to our problems.

Many communities are simply running out of space, running out of time, and running out of solutions. In Nevada, we have problems. A great deal of attention has been focused on the safe and proper disposal of low- and high-level nuclear waste. Nevadans object to the storage of those wastes in our State at a time when we cannot seem to find environmentally safe methods for disposing even of our conventional solid waste.

The landfill for the Las Vegas area is rapidly running out of space, and concerns have been expressed over the improper disposal of hazardous and toxic wastes in landfills all over the country.

There have been a number of letters to the editors in the papers of southern Nevada concerning the improper dumping of trash in the metropolitan area, period.

Proper disposal of wastes is a crucial issue for Nevada and for our Nation. Methods do exist for dealing with solid wastes.

As the chairman mentioned, incineration can reduce the volume of waste, but hazardous air emissions and ash may be the byproduct. Conventional landfills may pollute goundwater, particularly with regard to landfills located near groundwater.

Recycling is an attractive option, but problems exist in separating the waste and creating markets for the waste. Reducing the volume of waste at the source is also possible. Bottle bills and the minimizing of packaging materials may help us save energy and extend the life of our landfills.

No one solution can completely solve our growing problems with the disposal of our wastes. We need to examine the costs and benefits of all these methods in our quest for a coordinated plan or program for dealing with our wastes.

We need to do more to encourage recycling as a means of minimizing the volume of our wastes. Recycling of aluminum cans occurs in Las Vegas, as it does in many communities throughout the Nation. Yet it has shown some success in reducing the volume of our solid wastes and reducing our dependency on foreign sources of raw materials.

Recycling of paper also occurs in Las Vegas, but not to the same degree as aluminum cans. The success of recycling has varied with varying market conditions, and the recycling today of paper materials is very poor.

The Federal Government is a major producer of waste products, waste paper, and a major buyer of paper. Yet little is being done to encourage paper recycling and waste reduction.

Ten years ago, in 1977, 308,000 tons of paper were purchased by the Federal Government. Yet virtually none was being recycled. In the seventies, a Federal employee in Las Vegas started a recycling program in his facility with the hope that additional Federal facilities would join the effort.

Tons of paper were collected and sold to a local recycling firm. Federal waste was being reduced and converted into useful products, such as wallboard.

Other facilities soon began collecting their paper, and the money returned to facilities eventually paid for the implementation of the recycling program. What started out as a simple idea with a noble end soon came to a halt when the market for waste paper fell and insufficient demand existed for the purchase of recycled paper products.

Today, it is business as usual at the Federal facility, I should say Federal facilities all over the country, with paper being disposed of at distant landfills.

The Federal Government is in a position to encourage solutions to our solid waste programs. Proposed guidelines for the recycling of paper were issued in April 1985. Unfortunately, those guidelines do not appear to be close to promulgation. They would be useful in encouraging our Federal facilities to promote the recycling of their paper wastes.

Stronger educational efforts, as the chairman also mentioned, would also be useful in increasing the amount of our waste that we recycle. Today, we continue business as usual and throw away valuable resources in distant, shrinking, improperly sited landfills.

I want to stress, Mr. Chairman, that the problem of disposing of solid waste affects the entire Nation. We need comprehensive policies and plans for the generation and proper disposal of our solid wastes. Anything less will be a failure of our obligation to our constituents, to the Nation and to future generations.

Thank you.

Senator BAUCUS. Thank you very much, Senator. To begin, our first panel consists of Gene Salerni; Gene is with the Legislative Commission on Solid Waste Management from Albany, New York; Cynthia Pollack, Worldwatch Institute, in Washington; Barry Commoner, Center for the Biology of Natural Systems, from Flushing, New York, and Sheila Prindiville, National Solid Wastes Management Association.

Before you begin, let me mention that we have a 5-minute rule here. Your full statements will be a part of the record. I encourage you to summarize and get to the core of your statement during the 5-minute period. Rest assured that your entire statement will be in the record.

Mr. Salerni, why don't you go first?

## STATEMENT OF EUGENE SALERNI, LEGISLATIVE COMMISSION ON SOLID WASTE MANAGEMENT, ALBANY, NY

Mr. **Salerni.** Good morning. I am grateful for this opportunity to testify about the solid waste problems that our Nation and my State are experiencing, as the now famous garbage barge has made known to the world. New York State generates enough waste every year to cover a football field to a height of five miles, end zones included.

Over 80 percent of this waste goes into a dwindling supply of landfills, more than half of which are either confirmed or suspected of contaminating groundwater.

In response, our State has recently implemented an ambitious solid waste management plan. Our goal is to reduce and recycle half our waste by 1997, with most of the remaining waste going to resource recovery facilities and very little waste being sent directly to landfills.

Our State will be doing its best to meet these goals, but I must tell you that it will not be easy, and frankly, there are many who tell us that it simply cannot be done. Well, I have been to Japan to study that nation's solid waste management practices, and I can tell you that it is not impossible, but it will take an aggressive, integrated effort from Federal, State and local governments to do it.

Japan is a nation with half the population of the United States living in a land area the size of California. They simply do not have the room to spare for landfills. Combined with their heavy dependence on imported raw materials and concern over environmental pollution, this has resulted in a long history of sensible solid waste management. And they have been successful.

For instance, by Western standards, Japan is recycling about one-half of its municipal waste.

Japan has built almost 2,000 waste incinerators and resource recovery plants and now burns two-thirds of the waste that remains after recycling.

Only 10 percent of Japan's waste is sent directly to landfills unprocessed. In effect, they are already meeting the goals of New York State's solid waste program.

The Japanese view solid waste as a major environmental threat, and they began promoting waste reduction and incineration with their 1954 Public Cleansing Law and have reinforced it many times since. Each level of government has been given distinct obligations regarding waste disposal.

Municipal governments have the responsibility to carry out waste disposal activities efficiently.

Prefectural governments are required to provide municipalities with necessary assistance and oversight, and the national government is required to establish standards to control pollution, conduct research and promote the development of waste management technologies and give necessary technical and financial assistance to prefectures and municipalities.

The national government meets its obligation in a variety of ways:

Recycling is advanced through the financial support of groups such as the Clean Japan Center. These groups, along with various government agencies, act as a clearinghouse for recycling information, assist in public education, conduct recycling research and have built, among other things, a tire recycling plant and a battery recycling plant.

National emission standards specifically for municipal waste incineration plants have been in place since 1967.

All workers at incineration plants are required to undergo extensive training.

The national government subsidizes up to 25 percent of the initial capital cost for solid waste incinerators and uses this subsidy as an incentive to achieve maximum pollution control.

These actions have resulted in some of the most remarkable solid waste management practices in the world. For example, almost all Japanese citizens practice some form of waste separation in the home. It is very common for waste to be sorted in the home into categories such as newspaper, glass bottles, metal cans, combustible waste, noncombustible waste, bulky waste and hazardous waste.

As a nation, the Japanese recycle 51 percent of their paper, over 70 percent of their aluminum and steel cans, and 50 percent of steel overall.

Sixty-six percent of all bottles are reused an average of three times, although some are used as many as 20 times, and 42 percent of all new glass is made from cullet. As a nation, the overall recycling rate is estimated to be approximately 50 percent, but even the Japanese don't know precisely what it is. These materials are counted not as wastes, but as resources.

Local recycling programs often are subsidized by municipalities who realize that it is cheaper to do this than to dispose of waste in incinerators or landfills.

To achieve public cooperation in recycling, there are extensive public education programs. School children are routinely taught waste hygiene curricula, and in some communities, public officials travel door-to-door to teach residents how to separate their waste.

Because of their recycling efforts, the average Japanese citizen generates only 2.2 pounds of waste needing disposal every day. This is in stark contrast to the 5.7 pounds that the average New Yorker generates each day.

What is not recycled generally goes to incinerators, and new Japanese waste-to-energy facilities are often community centers equipped with swimming pools, playing fields, tennis courts and classrooms. This, along with commitment to emission levels far below what is required, helps ease public opposition to the siting of these plants.

The Japanese are increasingly using techniques such as cementing and melting to stabilize incinerator ash before it is landfilled.

Japan's solid waste management system is probably the most advanced in the world today and offers many lessons for the United States. Unfortunately, in the time allowed, I can't adequately describe them all. I have provided as part of my written testimony, a report that I recently wrote to the New York state legislature, and I am currently working with a colleague on a comprehensive book on the subject of Japanese solid waste management practices which will be released next month that I will be happy to provide to the subcommittee.

To conclude, I would say that there are numerous measures that can and must be taken before we manage our solid waste in an environmentally sound manner. The Japanese have shown us that there is a road out of this mess. It is up to us to take it.

Thank you.

Senator **Baucus**. Thank you, Mr. Salerni.

Ms. Pollock.

## STATEMENT OF CYNTHIA POLLOCK, WORLDWATCH INSTITUTE, WASHINGTON, DC

Ms. **Pollock**. Good morning, Mr. Chairman and members of the subcommittee. Lately we have heard much talk about garbage in this country. The Nation's landfills are reaching capacity and past disposal practices have resulted in groundwater contamination and methane gas migration so that there is now strong political opposition to new landfill sites.

Waste transportation and disposal costs are escalating rapidly. Scores of cities have seen their disposal costs multiply, sometimes as much as six-fold, just since 1980.

According to some estimates, half the cities in the United States will exhaust their current landfill capacity by 1990. Thus, cities are looking for solid waste management alternatives, and these include primarily waste-to-energy incinerators and waste recycling programs.

In too many instances, these alternatives are viewed as exclusionary choices, one or the other, when, in fact, effective waste management plans must integrate recycling, incineration, and land filling.

The real question is how large a role each option can and should play and what complimentary measures can reduce both the volume of and hazards associated with solid waste?

At present, almost 90 percent of the Nation's waste is buried unprocessed in landfills. This figure is much higher than one would find in Europe or Japan, where space constraints long ago required the adoption of other strategies.

In Japan, for instance, as we have just heard, between 60 and 55 percent of the country's waste is recycled, while only 10 percent of it is dumped unprocessed into landfills and the remainder is incinerated.

Unfortunately, in the United States, it is all too common for a city that is running out of landfill space to look to more distant landfills or to decide to build a waste-to-energy plant designed to handle the entire waste stream. Occasionally, a goal of 10 to 15 percent recycling is tacked on to the plan as a good public relations measure.

At least in the short term, it is undeniable that mass-burning plants will be required to process a share of the waste treatment. The biggest remaining problem with incinerators is that there are no Federal regulations regarding pollution control equipment, operating standards or worker training. The plants emit dioxins, acid gases, 27 different types of metals, and toxic ash.

City, State and Federal policymakers must reorient their thinking. The only sensible waste management strategy entails the reduction, reuse and recycling of waste to the greatest extent possible and then sizing incinerators and landfills to accommodate the remainder.

Too often, city officials go at the problem backwards, and after planning a large waste-to-energy plant, find there is no longer any incentive and, in fact, disincentives are created to reduce the waste stream.

Recycling is increasingly the most cost effective disposal option in this country. Economic Studies have been done in California and in Minneapolis that conclusively show that recycling is the least expensive option, much less expensive than either landfilling or incineration.

Recycling is not profitable to a city, but it is the least expensive, and it will become increasingly less expensive relative to other options as landfill and incinerator costs rise.

This avoided cost of waste disposal is what is really driving the economics of recycling programs. There are also tremendous energy and material savings in addition to reduced pollution that accompany recycling programs. Recycling materials often saves more energy than would be generated by burning those same materials in incinerators.

What is needed to encourage additional recycling are full-time officials at both the local and state level to ensure that recycling receives a fair hearing in solid waste management decisions. Also required are budgets comparable to recycling goals. Oftentimes, a city will state that it plans to achieve a recycling goal of 25 to 50 percent, and yet a much smaller share of the waste management budget will be allocated to recycling.

At least in the short term, if the goal is 25 percent recycling, 25 percent of the budget should be allocated to that program to cover the start-up costs. After the program is established, that amount can be reduced.

There are a number of priorities that municipal and state governments must consider in their efforts to resolve the solid waste management crisis. The first priority is to reduce the volume, toxicity and nonrecyclability of waste.

There are a number of ways to achieve this. For example, disincentives can be put into place to discourage the use of certain products and packaging. New York State is considering the adoption of taxes on packaging that is not recyclable or made from recycled materials.

Another option would be to require an approval process for new packaging, similar to that required for new chemicals or new food and drugs. The Food and Drug Administration is currently evaluating the proposed use of polyvinyl chloride plastics for food packaging, but is only considering the health issue of polyvinyl chloride reaching the food product and not the disposal problems associated with the polyvinyl chloride.

Polyvinyl chloride is not biodegradeable in landfills and results in dioxin and acid gas releases from waste-to-energy plants.

Additional strategies are deposit systems. We see those now for beverage containers, and there has been talk of implementing them for other products that are difficult to dispose of including tires, batteries and products like wood preservatives.

As an appendix to my written testimony, I have provided a representative sample of the hazardous components found in municipal waste and the problems they cause. These are some of the products that we might consider putting some sort of tax or other disincentive to consumption on.

The second priority is to promote programs that would increase reuse and recycling rates. This entails incorporating recycling education in school curriculums and educating consumers and residents to eradicate the "out of sight, out of mind" approach to products and packaging on the one hand and waste management on the other.

These would include efforts to bring home the idea that there is no real "away" for throw-aways. Ten states already have some type of bottle bill, and California's the newest, will come into effect this fall. Then, 25 percent of the U.S. population will live in states with bottle bills.

Statewide recycling legislation in New Jersey, Oregon and Rhode Island promotes source separation and curbside pick-up of recyclables. In New Jersey and Rhode Island, participation will be mandatory.

Senator BAUCUS. Ms. Pollock, I have to ask you to conclude.

Ms. POLLOCK. Standardization of products would also help to encourage recycling.

The third priority is to encourage markets for secondary materials and recycled products. Strategies to do this include procurement programs, which 15 States have now adopted since the EPA has not acted, and the end of subsidies to virgin materials. These subsidies include oil depletion allowances and below cost timber sales.

Also needed is market research of factories and international markets to determine what processes could incorporate secondary materials; tax incentives and disincentives to processors, manufactures and consumers; increased attention to recycling technologies such as deinking and plastics recycling and identification systems so that the processors can separate different types of resins and make higher valued products from the recycled products.

In sum, uniform, strongly-enforced regulations governing incinerators and landfills and the elevation of comprehensive recycling, to a Federal, state and local priority will go a long way toward ameliorating the current waste disposal crisis.

Senator BAUCUS. Good. Thank you very much.

[An attachment to Ms. Pollock's statement follows:]

## REPRESENTATIVE SAMPLE OF PROBLEMATIC PRODUCTS & PACKAGING
Requested Appendix to the Testimony of Cynthia Pollock

| Item | Problematic Component | Effect |
|---|---|---|
| Colored Inks | Cadmium, Lead, Mercury | Bioaccumulate, toxic--carcinogenic, damage liver, kidney, central nervous system |
| Small Batteries | Cadmium,Mercury,Silver | Toxic, bioaccumulate |
| Hard Plastics | Polyvinyl Chloride | Incineration produces dioxins and hydrogen chloride gas that irritates eyes and respiratory system, corrodes metal-including incinerator, contributes to acid rain; dioxin impairs immune system, causes chloracne, affects fetal development |
| Plastic Foams | Chlorofluorocarbons | Deplete atmospheric ozone thus depressing human immune system, stunting plant growth, and causing skin cancer; also a greenhouse gas |
| Furniture Polish, Car Wax, Metal Polish | Petroleum Distillates | Toxic |
| Oil Paints | Antimony,barium,cadmium, cobalt,strontium,zinc | Flammable, toxic |
| Drain Opener, Oven Cleaner, Paint Stripper | Sodium Hydroxide | Corrosive, causes burns and eye damage |
| Bleaches | Chlorine | Toxic |
| Fluorescent Lamp Ballasts | Polychlorinated Biphenyls (PCBs) | Carcinogenic, bioaccumulate |
| Wood Preservatives | Creosote,Arsenic,PCP (Pentachlorophenol) | Toxic to liver, kidney, central nervous system, PCP contains dioxins |
| Cleaning Solvents | Ammonia | Poisonous,in landfills can leach toxic metals from incinerator ash |
| Insecticides | DDT, aldicarb, etc | Toxic, bioaccumulate |
| Photographic Chemicals | Selenium toners, bleaches | Toxic |
| Spray paints,glues cosmetics | Toluene | Reproductive hazard |
| Ceramic Glazes | Lead | Toxic, bioaccumulates |

Senator BAUCUS. The next witness is Mr. Barry Commoner.

Mr. Commoner, we are very honored to have you here. You were one of the premier leaders in the environmental movement. You are a great credit to the world, and we are happy to have you here.

## STATEMENT OF BARRY COMMONER, CENTER FOR THE BIOLOGY OF NATURAL SYSTEMS, FLUSHING, NY

Mr. COMMONER. Thank you. You are very kind. I have submitted the written testimony and I will try to touch the high spots in this short time.

I think we are all agreed there is a crisis. I want to concentrate on two points: One, why is there a crisis? And secondly, how should were solve it? Obviously, the two are connected.

The reason why we have a crisis is that trash has been the orphan pollutant. You look at the records of research, both basic and applied, and you will discover much more research on air and water pollution and toxic chemicals than on trash. It has been left hanging dry.

In this vacuum, there has been heavy pressure from industry to build incinerators. It is interesting that at least two of the incinerator manufacturers are looking for business because they can't build power plants. The orders have fallen off. There is very heavy pressure. Yet, I will say flatly, and I think I can give you the evidence, that trash-burning incinerators are faulty instruments, and on top of it, block the adoption of the best, of the proper way of dealing with trash, which is recycling.

I don't agree that you can do recycling and incineration at the same time. Let me say a few words about what we now know about the incinerators.

When they were introduced, municipal officials often claimed that, incinerator people told them, "This is a proven technology; it works; there are no health effects and, in fact, it is the only alternative to landfilling."

Both statements turned out to be wrong. It is not a proven technology. The theory that the engineers used to design the trash-burning incinerators turns out to be wrong. The theory was this: That the organic matter, including toxic materials, in the trash would be destroyed at a very high combustion efficiency and high temperature. And the claim was made over and over again that the dioxin, which is the most serious emission problem, is destroyed at high temperature and if an incinerator operates hot enough, all will be well.

At our research institute; the Center for the Biology of National System, we looked into this and simply collected the relevant data. It turns out there is no statistical correlation between the temperature of a furnace or its combustion efficiency and the emissions of dioxins. Yet you can look at a number of State regulations, including my own State of New York, and find that they call for high combustion efficiency and high temperature for the sake of controlling dioxin emissions.

In other words, the theory doesn't work. When we began to look into the fundamentals, to make a long story short, what we discovered was that the dioxin, rather than being destroyed in the incinerator, is synthesized in the incinerator. Dioxin is not generally in trash; it is literally synthesized, catalyzed by fly ash particles, in the cooler parts of the incinerator: the stack and the control device.

When we put this theory forward, the incinerator industry, well, the nicest thing they did was laugh.

They are not laughing any more, because several tests have been carried out at incinerators which prove that we were right. For example, at the Prince Edward Island incinerator in Canada, dioxin was tested in the gas coming out of the furnace and there wasn't any; but it was found in the cooler parts of the incinerator.

This means that we are dealing with a faulty technology. Let me say a quick word about the health effects of the dioxin. We have just received from EPA a report which says that the existing incinerators are responsible for 2 to 40 cases of cancer each year.

Senator REID. Would you repeat that, please?

Mr. COMMONER. The EPA report to Congress that was issued on July 7th says that the existing trash burning incinerators in the United States, largely because of their dioxin emissions, are responsible from between 2 to 40, 2 to 40 cases of cancer annually in the United States.

That value is an underestimation, because it considers only the entry through the lungs. Actually, we know that five times more comes in through ingestion of dust: Kids putting their hands on the floor, putting their fingers in their mouth.

Also, there is an indirect route through food. When those corrections are made, the EPA's figure ought to be 12 to 240 cases per year. Now, you must say, "Well, what is wrong with that? That is not many cases."

Let me make a very simple point. Under section 112 of the Clean Air Act, EPA has instituted regulatory proceedings against a series of airborne carcinogens with much lower annual cancer incidence.

For example, carbon tetrachloride has an annual incidence of 46 cases. I make a simple point. If EPA is to be consistent, it ought to be regulating incinerator emissions under section 112. Actually, what it has done is to invoke section 111, which does not involve ambient standards, and I think that is a mistake.

Let me very quickly turn to the solution. I think there is only one solution, and that is recycling. For the reasons I have just expressed, I regard incineration as unacceptable, unacceptable from a health standpoint.

We now know, for example, that every American carries dioxin in our body fat, and we have done an analysis of the meaning of that level. It shows that the dioxin exposure responsible for the observed body fat levels could cause about the same number of cancer cases so EPA's corrected figures on cinerator emissions.

In other words, we are all being exposed, at unacceptable levels, to dioxin from incinerators, and I think it has to stop. What about recycling? We have heard it is a great thing, but the average recycling in the United States communities is 7 percent of the trash. Why? Well, we have looked into that. We, at CBNS, have devised a system which is now being tested with the support of a New York State contract, at the town of East Hampton, Long Island. We plan to recycle 70 percent of the trash by weight.

Why? Why is that possible? Well, over 80 percent of the trash is recyclable. What you have to do is go after all of it instead of setting up newspaper recycling in one place and can recycling in another place. You have to integrate the entire system.

We believe that we will be able to recycle 70 percent by weight. This is an interesting figure, because 70 percent by weight is exactly what the incinerators can handle; 30 percent, in the form of ash, has to go back to landfill.

We think what we call intensive recycling can be a total alternative to incineration. We have just received a contract from the City of Buffalo to work out the feasibility of applying this same system there.

Why do I think there is a conflict between recycling and incineration?

Senator **Baucus**. I will have to ask you to summarize as best you can.

Mr. **Commoner**. Yes. The reason is that the cost effectiveness of incineration depends on the Btus in the trash. Most of the Btus are in the form of paper. If you recycle the paper, there is not going to be enough energy left to run an incinerator economically.

It is very important to recognize that the incinerator companies insist on having what they call flow control in their contracts. They want at least access to 85 percent of the total trash. In Akron, a recycling company was forced to close down because it violated the flow control provision of the incinerator contract.

The issue is to develop total intensive recycling and to gradually phase out the incinerators. I think that is the solution to the crisis.

Senator **Baucus**. Thank you very much, Mr. Commoner.

The next witness is Sheila Prindiville. Sheila.

## STATEMENT OF SHEILA PRINDIVILLE, NATIONAL SOLID WASTES MANAGEMENT ASSOCIATION, WASHINGTON, DC

Ms. **Prindiville**. Senator Baucus, Senator Reid, thank you very much for the opportunity to present comments on behalf of the National Solid Wastes Management Association on this important issue. I would like to highlight just a few of the points from our written testimony which has been submitted for the record.

We do not believe that there is a national solid waste disposal crisis. We believe that, in fact, this country in the aggregate has the land area and the technology to deal with its waste in an environmentally sound way. But we also recognize that there is a problem in individual communities, in certain regional geographic areas, even in whole states.

Now, how an individual community gets to the point where it has fewer than 5 years of useful life in its landfill and somehow has not approved an alternative disposal mechanism probably has a number of reasons, one of which Dr. Commoner has stated.

I am going to suggest that there are three others. One, is a lack of public understanding about the problem; two, is a lack of public trust in the proposed solutions; and the third is a lack of political will to act in the face of public controversy.

If I am right about that assessment, then we have to ask ourselves what we can do in this political climate to solve the problem.

I think that there are three things that we need to do and the "we" here, I believe, means legislators and regulators and the private waste sector, planners, and community representatives.

The first thing that I believe we need to do is to stop promoting a magic bullet for solid waste disposal. I don't believe that there is a single alternative that will rid us of our wastes; that, in fact, sound waste disposal is a product of an integrated solid waste management system that, for many communities, will include, at a minimum, recycling and incineration and landfilling.

The second phase that I think we need to have, we must have, is credible environmental regulations, equitably enforced. It is not only appropriate; it is necessary for the Federal Government to put a Federal floor under State landfill practices and under resource recovery facilities.

But over and above putting controls on the end of the process on disposal, we need to examine what can be done at the front end of waste generation. You and Ms. Pollock and Mr. Salerni have alluded to what those might be. I would hope that you might consider in this committee whether or not you want to mandate that EPA explore materials substitution for those products that may, in their final disposal, be so harmful to the environment that they ought to be kept out of short life consumable products in the first place.

Secondly, that we look at incentives for encouraging manufacturing processes that use secondary materials. Finally, Mr. Chairman, I think what we have to have is States exercising their responsibilities to manage solid wastes within their geographic areas. That, at a minimum, means that States need to complete and/or revise those solid waste management plans that have for so long been required under subtitle D and perhaps, more importantly, they need to issue those permits for environmentally sound waste disposal alternatives.

Our association will look forward to working with you to explore how Federal legislation can, indeed, promote sound solid waste management.

Thank you.

Senator BAUCUS. Thank you, Ms. Prindiville.

It seems to me that there are really two questions. One is: What works? That is, what forms of handling municipal waste work best? The second question, really, is the degree to which the Federal Government should get involved.

Ms. Prindiville, Mr. Commoner made a very eloquent case for recycling, basically saying that incineration doesn't work. You heard his reasons. What is your response to that? He made a fairly strong case for recycling.

Ms. PRINDIVILLE. Senator, let's take that in two bottles. I really would like to explore the case for recycling, but let me suggest to you that with the matter of waste-to-energy facilities, you might have your staff explore about five other sources of information.

I would refer you in specific to a conference that was held in Japan last year called "Dioxin '86". I believe there is some very important papers there which discuss the health effects of dioxin and the process of dioxin formulation that you would find very useful.

I will defer to Mr. Salerni when he makes a very eloquent case for use of waste-to-energy in Europe and in Japan. I would also like to suggest that you might explore the Swedish moratorium during which time the Swedes elected to put a hold on resource recovery facilities while they explored the problem of dioxin. They have, in fact, now lifted that moratorium.

I also would like to suggest that your staff might want to pursue some of the health effects studies that have been done on various resource recovery facilities that have been proposed or built in this country. In particular, you might want to look at the one that has been done for the Brooklyn Navy Yard facility that health effects study for that waste-to-energy plant was done by the Mount Sinai School of Medicine, particularly their environmental sciences laboratory.

Senator BAUCUS. In effect, you are saying that there are several studies which are not in contradiction, at least, to the question of some of the findings of Mr. Commoner; is that correct?

Ms. PRINDIVILLE. That case is made elsewhere.

Senator BAUCUS. That is not the words in his mouth. He is basically saying incineration does not brew up that organic material; it is, rather, synthesized and is still there and the human beings are able to consume it. You say that is not accurate?

Ms. PRINDIVILLE. Senator, I am saying that there are other studies that, in fact, show that there are ways to control pollution emissions from resource recovery facilities. No one is saying that there are not such, but that, in fact, they can be controlled at safe levels.

Senator BAUCUS. What are those other ways?

Ms. PRINDIVILLE. Senator, we are talking about the kinds of control technologies that EPA has identified in its most recent list to States: fabric filters; bag houses; acid gas scrubbers. Those are known technologies which, in fact, do control emissions from resource recovery facilities.

Senator BAUCUS. Dioxins are emitted in organics.

Ms. PRINDIVILLE. We want to talk, I think, about recycling. There are none of us here who don't believe that, in fact, reducing waste is as important as disposing of it in its end form. How we do that, I think, how we get to the goals that others on this panel want and that you have expressed is equally important.

Senator BAUCUS. Mr. Commoner?

Mr. COMMONER. Let me respond to the points made by Ms. Prindiville. In the first place, this Japanese dioxin conference is one that is held every year, and at least two of the studies that confirm our theory about dioxin synthesis have been presented at those conferences.

Senator BAUCUS. Which two are those?

Mr. COMMONER. This is called "Dioxin '86", "87" and so on. Dioxin 1987 is being held in Las Vegas.

As to the Swedish moratorium, you haven't heard the whole story. The Swedish moratorium, when it was lifted, set certain standards for dioxin emissions. When those standards were announced, several executives of U.S. incinerator manufacturers were quoted as saying that they could not meet the standards.

As to the Brooklyn Navy Yard, in the first place, the study was not made by people from Mount Sinai. It was a study made by the Fred Hart consultants. A couple of people from Mount Sinai were brought in to say, "Amen."

That study concluded that there would be a maximum lifetime cancer risk of six per million from the emissions of the Brooklyn Navy Yard incinerator.

Let's compare that with the EPA's regulatory standards, because the EPA uses both maximum lifetime cancer risks and the annual cancer incidence to judge whether to regulate an airborne carcinogen.

Methylene chloride, which has now triggered the EPA regulatory process has had a maximum lifetime cancer risk of 0.83 per million, much less than the Navy Yard figure of 6 per million.

In other words, the Brooklyn Navy Yard risk assessment, done by the Department of Sanitation's own consultant, indicates that the lifetime cancer risk from that plant is greater than risks that EPA has used to trigger regulation of airborne carcinogens.

Finally, the business about the new control technologies. One of the curious ironies is that the new control technology, the use of scrubbers, is based on the theory that dioxin is synthesized at low temperatures.

Everyone quotes a series of tests at a pilot plant in Quebec, and they did, indeed, sharply reduce the emissions of dioxin.

How did they do it? By installing a scrubber that has a cooling device. Water is injected into it so that they bring the temperature down, instigating synthesis, and then it goes into a bag house where the fly ash is trapped.

Now, where is the dioxin? The dioxin that doesn't come out the stack is in the fly ash in the bag house. So the new control technologies simply shift the health problem from emissions to fly ash. They do not reduce the total production of dioxin. They simply shift it from one place in the environment to another.

I know of no effective way of dealing with dioxin, which is very stable, in fly ash. So, all that the new control technologies do is to give us a different kind of dioxin problem.

Senator **Baucus**. My time is up.

Mr. **Commoner**. I have to disagree with Ms. Prindiville.

Senator **Baucus**. Thank you, Mr. Commoner.

We are joined now by the Senator from Rhode Island, Senator Chafee.

Senator **Chafee**. Thank you very much, Mr. Chairman. I apologize for being late. I had to testify before the Education Subcommittee on legislation that I have pending. I have no opening statement, but I think this is extremely interesting, and I want to congratulate you for holding these hearings on municipal solid waste.

Senator **Baucus**. Thank you.

Senator Reid?

Senator **Reid**. Mr. Chairman, I have a number of questions. There was an announcement made—I heard it on the radio this morning—that McDonalds, during the next 18 months, is going to start using a new packaging material for their food that they serve. Is this going to help the overall problem? Is the new product that they are going to use any better than the plastic product they now use?

Mr. **Commoner**. What is it?

Senator **Reid**. I don't know.

Mr. **Commoner**. I can tell you this: We have been doing a study.

Senator **Reid**. It is going to be nonchlorofluorocarbon.

Senator **Baucus**. I think it is because of ozone.

Senator **Reid**. It is because of the ozone problem.

Senator **Baucus**. It is getting after the ozone, the CFC reduction.

Mr. **Commoner**. But it is still plastic.

Senator **Reid**. I don't know.

Mr. **Commoner**. We have been doing a study of the occurrence of plastic in trash, and it is the real bugaboo in either recycling or incineration.

Senator **Reid**. It seems there is agreement on a number of major things here this morning. Ms. Prindiville, yourself, you all agree that one of the problems is the product itself that we are throwing away.

Mr. **Commoner**. Right.

Senator **Reid**. I am wondering if anyone is addressing these studies as to how costly that would be to change some of the food packaging. I know at my house, that is one of the biggest things that fill up my garbage is the packages that everything comes in.

Mr. **Commoner**. We have now just about completed a study on the occurrence of plastic in household trash, and you are right. Food packaging turns out to be the biggest contributor of plastic. What we have been doing is developing a hit list of which items contribute the most to the total trash.

Senator **Reid**. When is that study going to be completed?

Mr. **Commoner**. We will finish it in the next month.

Senator **Reid**. Will you make sure that I personally get a copy?

Mr. **Commoner**. I absolutely will.

It turns out that of the food packaging (which is most of the packaging in trash) that is plastic, half of it comes from exactly two items: The plastic soda bottles and gallon milk bottles. We also checked on the occurrence of chlorinated plastic, because they are contributors to dioxin, and it turns out the bulk of that is the plastic film that is used to wrap cheese and meat.

In other words, our study indicates that there are a handful of very specific items that cause most of the trouble. I would hope that that can be used as a way of beginning to reduce the use of those materials.

Senator **Reid**. It also seems that everyone here acknowledges that recycling is a method of disposing of waste. Are there any places in the country where there is a so-called model recycling operation, in effect?

Mr. **Commoner**. Well, I hope, starting on September 15th, on a trial basis it will be East Hampton, Long Island.

Senator **Reid**. So the answer is no.

Mr. **Commoner**. No, not yet.

Senator **Reid**. Does anyone disagree with that?

Mr. **Salerni**. There are some instances here and there of communities recycling. Camden County, New Jersey is recycling newspapers, bottles, cans. Hopefully, they will be recycling 25 percent of their waste.

Senator **Reid**. I think the point Mr. Commoner made is the fact that you need to do everything, not just bottles and papers. The cans and the papers we have done in Las Vegas, that simply doesn't work because the paper price goes down and that whole industry is, in effect, out of work, out of business.

Mr. COMMONER. There is no town I know of that does it all.

Ms. PRINDIVILLE. Senator, one of the things that NSWMA has explored is what are the common elements of what makes a program successful. We did a study of that about a year ago and have tried to find out what works and what doesn't work. What we can isolate seems to say that a program, wherever it is, needs to be mandatory.

There must be an obligation to participate, and it needs to be convenient. It really ought to be easy for people to participate in that kind of program. If we are going to change the ethic or encourage the ethic of recycling, it does need to be made easier. That takes all manner of forms, though I am not sure that I can point to a specific city.

One example that we used in a subsequent magazine story was the community of Hamburg, New York, which, in fact, managed to attain, according to the city managers, a 98 percent participation rate in the recycling efforts, and for that effort, managed to reduce the waste going to the landfill by about 25 percent.

Mr. SALERNI. There is one city is Japan that is coming close to it, the city of Machida. A third of one million people are recycling somewhere near two-thirds of their waste. The residents separate their wastes into seven categories in the home.

All newspapers, bottles, cans are recycled. Some trash is landfilled. Bulky articles such as bicycles are refurbished in the workshop staffed by the city and staffed by handicapped adults. These items were.

Senator CHAFEE. Where was that, again?

Mr. SALERNI. Machida, a suburb of Tokyo.

Ms. POLLOCK. Senator, there are isolated communities in the United States that are achieving high rates of recycling. The communities that are receiving the close to 50 percent rates are in very small towns, not large cities at this point.

Later we will be hearing from Lorie Parker from Oregon. In Portland, there is already a 22 percent recycling rate and the goal is a 52 percent rate. Legislation to encourage recycling was only passed last summer, and has just recently been, the provisions of that, put into effect in Portland. So you should see their rates rising considerably.

In addition, New Jersey and Rhode Island now have statewide recycling legislation. The communities have not yet developed all of the guidelines that will go along with those programs, so we haven't seen the effects yet, but we should, within the next couple of years, see their recycling rates rise considerably.

Senator REID. Thank you, Mr. Chairman.

Senator BAUCUS. Thank you, Senator Reid.

Senator Chafee.

Senator CHAFEE. I have one quick question of the panel, not Mr. Commoner, because as I understand, Mr. Commoner's position is you don't need incineration because you can recycle now. Let's take the others. You say you recycle what you can, then you incinerate.

One of the major things that you recycle is paper. But paper is also one of the elements that would provide the incineration. So thus, the percentages of recycling is greatly reduced because you are burning the paper to run your incineration.

If you don't do that, then you have to use fuel, oil or something else, and we start around the circle again. What is the answer to that?

Ms. **Pollock**. The answer is to push recycling even more.

Senator **Chafee**. Not too fast; I can't hear you.

Ms. **Pollock**. The answer is to give further incentives to recycle, both plastics and paper, which are the two highest—two waste products with the highest fuel value for incineration; save more energy when recycled than when burned to produce energy at waste-to-energy plants.

If we get to the stage where we are recycling so much that we don't need incinerators, that is terrific.

Senator **Chafee**. You haven't reached that stage yet, as I understand your presentation.

Ms. **Pollock**. I think that in the short term, there are materials which are not easy to recycle, some of the plastics and some of the composite materials which have paper and plastics and aluminum all mixed together.

Those materials are not yet economic to recycle and will be put into the waste-to-energy plants that we build and contribute greatly to the fuel value.

Mr. **Salerni**. I would like to add to that. With regard to the Japanese, they recycle all they can. Almost all the paper comes out and a lot of the plastics. It affects the Btu value of the fuel. It is much lower per pound than it is in this country. But so be it.

If you ask their incinerator operators, "What is the purpose of this plant?" they will tell you "Pollution control, reducing the volume of waste." It is an energy-generating plant second. The costs of running these plants are high, but they are willing to pay them to put the environment first.

Senator **Chafee**. Do you agree, Ms. Prindiville?

Ms. **Prindiville**. I do, with both.

Senator **Chafee**. One quick question. Is it the Japanese in this village somewhere that are the best at handling of municipal solid wastes and seem to have arrived at the best solution; maximum recycling and so forth?

Mr. **Salerni**. From what I have seen, it is. Of course, they incinerate some of the remaining waste. Someone disagreed with that, but they recycle very high amounts. The nation as a whole is recycling very high amounts.

Senator **Chafee**. Would the rest of you agree? If we wanted to see something, we would go to Japan?

Ms. **Pollock**. There might be minor changes to the program. Instead of having different materials collected on different days of the week, you might be able to do it the same day to make it easier on households.

Senator **Chafee**. Where should we go, if they said, "Take a trip."

Ms. **Pollock**. Japan.

Senator **Chafee**. Japan. Thank you.

Senator **Reid**. When are we going to leave?

Mr. **Salerni**. We can accompany you and show you around.

Senator **Baucus**. I think it is clear that recycling is a very noble goal, in fact, one which we should strive for. It seems to me if we are honest with ourselves, there are differences between, say, Japan and the United States; between some European countries and the United States. One difference is the space.

Take my State of Montana. The area of the State of Montana is almost exactly the area of Japan. We have 800,000 people in Montana. The Japanese population is roughly, what, 125 million.

If you take the habitable part of Japan, the density of Japan is even greater than that.

Mr. **Salerni**. Only one-fifth is habitable.

Senator **Baucus**. Only one-fifth of Japan is habitable. That is 20 people per square mile in Montana. That is 300,000 divided by 5; that is 150,000; 30 times 5.

Mr. **Salerni**. One thousand five hundred people per square kilometer.

Senator **Baucus**. It seems to me that the more dense the area, the greater the cost of landfills because there isn't space for them. In our country, we have more space.

Mr. Commoner, how far can we realistically go in this country, particularly in which parts of this country, in moving in a very significant way toward recycling? Japan recycles 50 percent, say, and realistically, how far can we move and at what rate in this country?

Mr. **Commoner**. Let me make this point: Over 80 percent of the trash can be recycled, and I am excluding plastics, even though there are some people who are prepared to do that.

That means that we ought to be able to recycle that 80 percent less inefficiencies. We think we can get to 70 percent. Incidentally, the remaining plastic need not be burned; it could be landfilled. It is relatively stable. The other thing to do with it, of course, is not manufacture it.

Let's take a practical situation.

Senator **Baucus**. Very quickly, because we have other witnesses here. We need to get to them, too.

Mr. **Commoner**. Long Island is under a State legislative mandate to stop using its landfills for anything except residual material by 1990. They will never make it by building incinerators, because it takes 6 years to build an incinerator, and then they will have to create hazardous waste landfills to receive the ash.

Recycling could be set up in about a year or two, and I think that you could easily devise a system for all of Long Island that would recycle around 70 percent of the trash and landfill the rest in inert form and then begin a campaign of getting rid of the material that has to be landfilled.

Senator **Baucus**. One question relates to the compatability of recycling and incinerators in Japan. Japan requires incineration plants that can consume more than 200 tons per day that can generate no more than 5 percent ash. That indicates to me that Japan thinks recycling and incineration can, perhaps should, co-exist.

Mr. **Commoner**. I don't understand the 5 percent figure. Every trash-burning incinerator I know leaves a residue of 30 percent.

Senator **Baucus**. This is Mr. Salerni's statement. Maybe you can comment.

Mr. SALERNI. It is a national technical standard for new waste-to-energy plants that process 200 tons per day, to produce 5 percent, by volume of ash. The way they get to this is by taking out all the bottles and cans and noncombustible items.

In fact, some of the plants have ash-melting equipment beyond that to reduce the volume of ash to 1 to 2 percent of the volume of waste coming to a plant.

Mr. COMMONER. Most of that ash is fly ash, with dioxin.

Senator BAUCUS. What is the proper role of incineration, in your view? To what degree should we incinerate in this country?

Mr. SALERNI. To reduce the volume. This is the Japanese attitude, is to reduce the volume and stabilize the rest of the waste that cannot be recycled. They are recycling as much as anyone can, but there is waste they feel they cannot recycle, and they feel it is best to do that.

Senator BAUCUS. Why can't they landfill it?

Mr. SALERNI. They can landfill it, but the landfills are hard to come by and very expensive. They feel by burning it and cementing the ash it is easier to reclaim the land afterwards, perhaps build on it rather than having a landfill generating methane gas for the next 30 years.

Senator BAUCUS. Thank you. I have no more questions.

Senator Chafee?

Senator CHAFEE. No, thank you.

Senator BAUCUS. Thank you very much. You have been very cooperative. I appreciate it.

Our next witnesses include Dr. Michael Gagliardo, Northeast Maryland Waste Disposal Authority, Baltimore, Maryland; Mr. Donald Deieso, Division of Solid Waste Management, New Jersey Department of Environmental Protection, Trenton, New Jersey; Tom Wright, Rhode Island Solid Waste Management Center, Providence, Rhode Island; Lorie Parker, Department of Environmental Quality, Portland, Oregon; and Norman Nosenchuck, who is with the New York Department of Environmental Conservation, Division of Solid and Hazardous Waste, from Albany, New York.

Mr. Gagliardo, Senator Mikulski informed us she had a hard time getting out of Baltimore this morning. She wanted to come here to be here to introduce you personally. She sends her apologies and wishes she could be here with us. Why don't you begin?

## STATEMENT OF MICHAEL GAGLIARDO, NORTHEAST MARYLAND WASTE DISPOSAL AUTHORITY, BALTIMORE, MD

Mr. GAGLIARDO. Good morning, Mr. Chairman and members of the committee.

I am here representing the U.S. Conference of Mayors and the National Resource Recovery Association. The nation's mayors formed the Association in 1982 to assist local governments in the development of alternative methods for municipal solid waste disposal, including waste-to-energy facilities and recycling programs. I currently serve as a trustee to the association and as Executive Director of the Northeast Maryland Waste Disposal Authority, which is charged with developing regional solid waste management projects in the Baltimore metropolitan area.

Over the last months, increased attention has been focused on how local governments dispose of municipal solid waste. We estimate that over half the nation's cities have less than ten years remaining capacity in existing landfills. It is also our opinion that this shortage of landfill capacity is a warning sign for the nation and that cities must begin on a broad basis to implement comprehensive solid waste management programs which include waste reduction, waste-to-energy, recycling and landfill components.

We were asked to respond as to whether we thought there was a national solid waste disposal crisis. It is clear that many cities are facing local solid waste disposal crises now and that the barge is an example of one community's crisis.

However, we do not think that the situations which have received extensive media coverage represent an across-the-board national crisis. On the other hand, if cities are unable to begin implementation of long-term solid waste management programs, then by the mid 1990s we will, in fact, have a legitimate national solid waste disposal crisis.

It is imperative that any amendments to RCRA assist communities in their effort to develop solutions, and to this extent, we believe that the committee should begin to consider the following issues to help ward off a true national crisis.

For many of our cities, waste-to-energy facilities must play an important role in solid waste management. However, RCRA and EPA's interpretation of it has led to regulatory confusion regarding the disposal of ash residue from waste-to-energy systems. It is clear to us that Congress needs to amend subtitle D of RCRA to direct EPA to establish acceptable management practices for ash residue.

As a part of this authority, EPA needs to address the development of standard sampling protocols for the testing of ash residue, representative testing methods and best management practices.

Until Congress and EPA establish such a regulatory framework for ash residue, it will be difficult for local governments to develop waste-to-energy facilities as a part of their comprehensive waste management programs.

We can say, Mr. Chairman, that the regulatory framework developed for ash residue must provide flexibility to local governments in selecting management options. We would be pleased to work with the committee to supply it with technical information regarding ash residue and current management practices.

By the fall of this year, we expect to be able to supply the subcommittee with detailed scientific data on ash residue characteristics.

We also believe that the subcommittee needs to begin to explore the development of a national recycling policy. Many local governments are anxious to implement recycling programs to reduce the waste stream, but there is a tremendous lack of practical information regarding the implementation of large-scale, comprehensive recycling programs.

A national recycling policy must acknowledge that successful recycling programs to date have been extremely site-specific and regional in nature. We believe that a national recycling policy should include technical assistance, market development for recycled materials, demonstration programs and other research.

To the extent that such a policy calls for elimination of certain compounds or products from the stream of commerce, such policies should be applied on a national scale.

A national policy should also address the need for incentives to develop long-term, stable markets for recycled materials. Without such long-term markets, local governments will be unable to rely on recycling as a legitimate component of a comprehensive solid waste management program.

We would be willing to sit down with the subcommittee to explore what the components of a national recycling policy might be and to analyze the ability of local governments to assist in the implementation of that policy.

We believe that as the full committee addresses general solid waste management issues, it should do so in the context of a discussion of amendments to subtitle D of RCRA and not amendments to the Clean Air Act.

It is our understanding that the full committee intends to mark up a Clean Air bill on September 15, which, in its present form, addresses many RCRA issues which we do not believe have been fully explored or debated.

We would hope that RCRA issues not be dealt with until the subcommittee has an opportunity to hold hearings on specific legislative proposals.

Mr. Chairman, the amendments to RCRA and to the Clean Air Act will very much determine the options available to local governments for the development of solid waste management programs which are protective of human health and the environment and also economically feasible.

We will be submitting for the record a more detailed assessment of RCRA issues as they are outlined in the committee's letter to us, and we look forward to working with you in answering any questions you or the committee members may have.

Senator **Baucus**. Thank you, Mr. Gagliardo.

Mr. Deieso.

## STATEMENT OF DONALD DEIESO, ASSISTANT COMMISSIONER, NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION, TRENTON, NJ

Mr. **Deieso**. Good morning, Mr. Chairman, Senator Chafee. Good morning to you.

Senator **Chafee**. Do we have a copy of your testimony, Mr. Deieso?

Mr. **Deieso**. It was delivered this morning, Senator.

Senator **Chafee**. Thank you.

Mr. **Deieso**. The full statement, I would ask you, can be in entered in the record. I have an abbreviated form I would like to present.

We welcome this opportunity to present our comments to you this morning as we consider a vitally important issue to our State. We, as many other States, are in the midst of an unprecedented solid waste crisis.

I will briefly highlight these three examples of the situation confronting our State with respect to disposal capacity to illustrate our predicament. In April of this year, with less than 1 week's notice, 2 of our counties were closed to an existing out-of-State landfill. As a result, nearly 300,000 residents went without collection and disposal for as long as two weeks.

One of four remaining major landfills in our State serving about 1.7 million of our residents exhausted its approved capacity this past June. Only through an emergency order have we kept that facility operating.

Finally, this past weekend, a second of our four major regional landfills serving the most populated counties in the state, 800,000 people, closed to further landfilling. As a result, emergency transfer stations have been placed into service to transport this solid waste out of State.

We currently estimate that over the next 4 years, we will be unable to dispose of 20 million tons of our solid waste. This represents nearly all of the solid waste generated within the northern half of our State, affecting over five million of our people.

Dwindling disposal capacity has also led to increased costs due to the need for upgrading remaining facilities as well as increased costs to go the additional distance out of State. Solid waste disposal has become one of the prominent items in municipal budgets, and mayors throughout our state are feeling the end of cheap disposal.

Let me detail New Jersey's program. Our long-term solid waste management strategy contains a three-pronged approach. Up front, recycling of up to 25 percent of the municipal solid waste stream, processing 50 percent of the total solid waste volume through resource recovery systems, and disposing of the balance 25 percent of the residual ash, in state-of-the-art landfills.

This management strategy is complemented by strong incentives for waste minimization, recycling and energy and materials recovery, including state-wide taxes on landfills as disincentives. These taxes fund planning, recycling, resource recovery and public participation programs as well as state level market development.

As a result, 17 of our 21 counties have selected sites for their resource recovery facilities. We estimate that New Jersey will have over $3 to $4 billion in resource recovery capital investment within the next 3 to 5 years.

Project status runs the full gamut of the beginning, planning, to construction for these facilities. Finally, New Jersey has passed within the past year the most comprehensive mandatory recycling law in the country, which requires all 567 of our State's municipalities to establish mandatory ordinances for the recycling of at least three recyclable materials and leaves.

From a planning standpoint, I believe our State is extremely advanced. We do have several obstacles I would like to spend a moment on. The first is the legacy of hazardous waste discharges from municipal landfills. In the past, the regulation of industrial wastes did not properly exclude hazardous waste materials from landfills. As a result, remedial programs today have been necessary to address these discharges.

New Jersey today is requiring state-of-the-art landfill design. However, in the absence of Federal leadership, New Jersey, as other States, has had no choice but to develop design regulations alone. Unfortunately, what has developed, I am afraid, in this country, is a mosaic of different landfill regulations.

The next obstacle facing us is siting. The siting of these solid waste facilities is one of the biggest challenges in meeting our long-term management goals. We do not advocate Federal intervention in the technical aspects of siting.

We do believe, however, that technical assistance in supporting sound disposal and recycling technologies should be provided to counter the misinformation that has plagued many siting activities.

We must learn to respond to the issue of NIMBY.

I have watched as this obstructionist movement has jumped from hazardous waste facilities to resource recovery facilities to landfills and transfer stations, and now even recycling centers.

Statesmanlike conduct by elected officials at all levels of government is desperately needed. Of all the misconceptions that we must address in the NIMBY, none is more difficult to overcome than the myth of total recycling. Many of our residents believe that total recycling is the answer. Total recycling would be wonderful, but it doesn't exist today in the United States or anywhere else in the world.

With the finest of technologies, even a scientific long-shot says we may be recycling 50 percent of our waste by the year 2000. Opponents of resource recovery facilities raised the specter of dioxin, and they do so with full understanding that a rather poorly-informed community will rise to that threat and, of course, make the siting of any facilities that much more difficult.

We maintain that three elements are critical. We have got to have a strong recycling program; we must have resource recovery in States as dense as New Jersey's, and we must have landfills for the residuals. We must communicate these facts to our residents, and we have got to battle the distortions in this fact.

The third issue is the question of Federal regulation of the ash produced by incineration. Any initiative that results in across-the-board classification of ash as a hazardous waste or that does not account for the trade-off between incineration and landfilling could have a devastating impact on the future of our state solid waste program.

In closing, we recognize and applaud the evolving Federal role in the solid waste management scheme. We are working closely with EPA as this develops, and we will be happy to work with this committee in this effort. There is no issue that we think more urgent.

Thank you.

Senator **Baucus**. Thank you very much for your statement, Mr. Deieso.

Mr. Wright.

## STATEMENT OF TOM WRIGHT, RHODE ISLAND SOLID WASTE MANAGEMENT CENTER, PROVIDENCE, RI

Senator **Chafee**. Mr. Chairman, I want to welcome Mr. Wright. He is a Rhode Islander and doing an excellent job up there in a program that is getting underway under his leadership. I think we will be the first State that goes totally on line for the separation of solid waste and thus, the encouragement of recycling.

Good day to you, Mr. Wright.

Mr. **Wright**. Thank you, Senator, Senator Lautenberg. My name is Tommy Wright. I am the Director of the Rhode Island Solid Waste Management Corporation. Thank you for the opportunity to testify before the hazardous waste and toxics statement.

My testimony will be oriented toward the questions that you have posed in regard to municipal waste management at the State level.

Coming from the second most densely populated State in the country, we are having great difficulty in developing new facilities for the proper disposal of waste in our State. In 1970, the State of Rhode Island had 44 landfills available for disposal; there are currently nine small municipal landfills left, and one major facility located in the center of Rhode Island which handles approximately 4,000 tons a day of municipal and commercial waste.

The corporation has also been attempting to site recourse recovery facilities in Rhode Island for a number of years, and only recent legislation which mandated their location has caused the situation to change. Due to the general shortage of disposal facilities in New England, the State of Rhode Island was recently besieged by trucks from the Boston area entering our State and reducing our capacity to dispose of waste in Rhode Island.

It was estimated that approximately 500 tons a day of out-of-State waste was entering into our landfill through transfer stations. This was due to the fact of low disposal prices in Rhode Island at the time and the general shortage of capacity that still exists in the State of Massachusetts.

We have been attempting to site recourse recovery facilities for 12 years. At this time, there are are now three facilities planned in the State of Rhode Island. One is under contract; one is to be assigned in September and the third we still have an undetermined site for.

The national problem involving siting exists also in the State of Rhode Island where sites had to be legislatively mandated due to large-scale public opposition which still remains today.

Rhode Island is also one of the first States to mandate a statewide recycling program that you alluded to in this morning's testimony. All communities in Rhode Island are required to source-separate their waste prior to 1990, which is the opening of the first resource recovery facility in North Kingstown, Rhode Island.

In relation to this, we have contracted with a private vendor to construct a materials recovery facility which will separate metal, glass and paper as well as some plastic materials, primarily soda bottles and milk containers at this point.

Materials that were selected for this plant were done so to offset the cost of a large-scale recycling program.

Rhode Island is converting from landfilling of raw garbage to recycling, resource recovery and land disposal of ash and demolition. This process will take place over the next 6 years. The issue of ash disposal is one in which we feel the Federal Government should be taking a much stronger role.

The current test procedure for the classification of ash needs to be updated to take into account the fact that ash will be disposed of in a monofill environment and that the assumptions that underlie that test procedure are not reflective of those that exist in landfill environments today.

The fact that the Federal Government may classify waste as hazardous, ash as hazardous, will have a great impact on the ability of the State of Rhode Island to proceed along the lines of an integrated program in managing solid waste.

We are setting aside a section of our landfill which will contain a double composite liner system with leachate collection for the disposal of ash residue only. We have also chosen mass-burn technology for our resource recovery plants, all of which will have dry scrubbing and acid gas controls associated with them. Therefore, we will be generating an ash material which is basic and, in our opinion, under the conditions as I have described, will pose little if any risk to the general public.

The problems that we in Rhode Island and many States face are centered around the siting issues and a highly vocal lobby which attacks every project individually and comes up short with policies that integrate all aspects of waste disposal. We in Rhode Island have ranked our options in terms of priority as follows: Number one, source reduction; number two, recycling; number three, waste-to-energy plants; and four, landfilling.

All of these components are necessary to deal with the solid waste stream. Our estimates of recycling range between 15 and 25 percent of the waste stream. The State of Rhode Island will also fund individual communities for their reasonable collection costs associated with their recycling.

I should mention they have some reestimates of recycling. It will cost us approximately $83 per ton to run our recycling plant versus $60,000 to $70,000 a plant for a waste-to-energy facility. Estimates for incineration were not cheap.

This means that the State of Rhode Island is in the business of heavily subsidizing waste disposal, including purchasing of recycling vehicles, containers, paying for labor costs associated with truck drivers, funding recycling coordinators for communities, building recovery facilities where recycled materials can be converted into marketable products and also offsetting the municipal cost of waste disposal at the resource recovery facilities.

This has the benefit of centralizing the issues of waste disposal, however, the down side of this is that the siting issues become more aggravated as municipalities have less responsibility for the disposal of their waste that is generated.

We need to move away from landfilling of raw garbage. It has been demonstrated time and time again that landfills produce leachate and since, many times, residents are either living near sites or moving next to sites, the risk for groundwater contamination affecting drinking wells is high and has been responsible for the closure of a number of sites in Rhode Island.

Rhode Island's central landfill currently takes waste from 30 of 39 communities in Rhode Island and is growing at an astronomical rate.

We have plans before our Department of Environmental Management which would expand this landfill to a height of 575 feet and covering an area of 154 acres in width. If Rhode Island is successful in building its three resource recovery plants, recycling would take place at a level of 25 percent by 1990, and if ash disposal is allowed, then this facility could be expected to have a life of approximately 20 years. However, all of these conditions would have to be met under a very adverse environment.

Prior to becoming the Director of the Rhode Island Solid Waste Management Corporation, I was employed by the Rhode Island Department of Environmental Management Corporation and headed the first hazardous waste site.

Most of the landfills in Rhode Island then and I am confident the rest of the country contained hazardous materials such as solvents, industrial chemicals and other industrial waste during the early 1980s. Most of the attention was given to subtitle C of the RCRA regulations, and the government devoted its attention to the hazardous waste issues.

The number of landfills that handled both solid waste and hazardous waste were closed during that time period and in Rhode Island, seven such facilities were placed on the Superfund priority list including the state's major landfill.

In Rhode Island, we have adopted stringent hazardous waste regulations which have virtually stopped the improper land disposal of hazardous waste. However, the shortage of treatment facilities in as acute in that area as is the solid waste field. We have, in essence, closed the door to legal disposal of both hazardous and solid waste.

One of the programs that we have adopted recently in Rhode Island is the collection of household hazardous waste on a regional basis. Communities and residents are allowed to bring household hazardous waste, pesticides, solvents, paints, et cetera, to collection centers free of charge and these wastes are categorized and properly dealt with.

Programs such as this should be pushed on a nationwide basis to encourage the proper disposal of these types of materials since the average homeowner has no access to legal disposal sites for hazardous waste.

The largest problem facing most State governments is the inability to control the myriad possibilities for waste production. The packaging industry is estimated to account for 40 percent of the waste stream generated, and we in State government have little if any control over those markets.

Most New England States have adopted a bottle bill or have imposed some sort of taxation on beverage containers, but this is only a small part of the packaging waste stream, and it is difficult for individual States to accomplish this.

Senator **Baucus**. Would you please wrap up, Mr. Wright.

Mr. **Wright**. Sure. Packaging must be designed with the disposal of such items in mind, such as degradation in either a landfill or incinerator environment, or, more importantly, reuse of such materials.

State and local governments should be responsible for siting new facilities, developing recycling programs and enforcement of environmental standards. The Federal Government can most beneficially assist in providing clear guidance on standards for landfilling, ash disposal and air emission from resource recovery plants, as well as a new major emphasis on development of criteria for packaging and labeling of products that are entering the waste stream in the United States today.

Thank you very much.

Senator BAUCUS. Thank you, Mr. Wright.

Miss Parker.

## STATEMENT OF LORIE PARKER, WASTE REDUCTION MANAGER, DEPARTMENT OF ENVIRONMENTAL QUALITY, PORTLAND, OR

Ms. PARKER. Good morning. I am Lorie Parker, Waste Reduction Manager at the Department of Environmental Quality in the State of Oregon. It is a pleasure to be to able to tell you about Oregon's integrated approach to solid waste management.

In Oregon, the priorities for methods of managing solid waste are established by statute. This is a catechism, and if you didn't know before we started it this morning, I am sure you are going to learn it by the end of the morning. It is to reduce at the source to reuse, to recycle, to recover, into energy and then landfill. What is different in Oregon, we think, is that we really live by that priority list and we work hard at following it.

In Oregon right now, we currently recycle approximately 22 percent of what would otherwise be solid waste. As far as we know, that is the highest recycling rate in the country. We have been recycling for a long time. We were the first State to pass a bottle bill, way back in 1971. More than 90 percent of our soda bottles and beer cans and bottles are recycled through the bottle bill. We think that you will not find a system any better than that.

We recommend a national bottle bill to you, because you are just not going to find a better way to bring those kinds of materials back.

Our second recycling act followed, 12 years later, in 1983, when the Oregon legislature passed what we call the Recycling Opportunity Act. The act does not require every Oregonian to recycle. It is not a mandatory recycling act, as some of the East Coast laws have been that have followed it. But it does require that a convenient opportunity to recycle be provided to every person in the state. Our theory was if it was convenient enough, and we taught people properly, they would recycle.

That is what we are acting from. The Act has three major parts. The first is curbside collection.

There must be curbside collection programs in every town over 4,000. In our State, that means 70 cities.

There must be a recycling depot at every landfill and transfer station for those people who live in rural areas and take their own garbage to the landfill.

And thirdly, and certainly as important as the service aspects of the law, is the education and promotion aspects. We require that there be notice to every person in the state about their recycling opportunities and why they should participate so the notice tells them why they should recycle and when the truck is going to be at our house and how to prepare the materials and how to get them out there, what time. They know, and it is convenient.

Senator **Baucus**. That is for towns over 4,000?

Ms. **Parker**. That is for towns over 4,000. The other notices go to people who live in towns outside that and tells them how to prepare the materials and where to take them at the nearest depot.

What do we require to be collected? It varies geographically from region-to-region in the state because we have a cost-effective definition of what is a recycling material. It is a balancing act between the cost of collection and disposal and the cost of collection and recycling. If it is as cheap as or cheaper to collect it and recycle it, we require it to be done.

In the metropolitan regions in the valley, where most of the people live and our markets are, the list is quite long.

Newspaper, cardboard, aluminum, tin cans, glass, scrap metals and used oil are all on the list that must be picked up from the households. High-grade office paper must also be collected from commercial establishments.

In a few very remote corners of the State, towards the high desert side, where there are very few people, only newspapers and ferrous metals make the list, because it is very hard to get enough material and get it to market to make it cost effective.

The program has been in place since July 1, 1986, and affected 70 cities and 125 landfills and transfer stations. Today, we have 106 cities with curbside recycling programs, because many of our small cities, smaller than 4,000, thought what was good for their city neighbors was good for them.

We have many cities requiring weekly curbside service.

The education and promotion programs range from a very slick advertising agency that produced commercial programs, multimedia, to the Cub Scouts delivering notices to the door.

The state does not hand out any money from the State level to the local governments to do these programs. So the money is generated at the local level and generally comes from the garbage rates, because the local governments have, in turn, asked the garbage haulers who are operating in those communities as part of their franchise, since we have mostly private collection and most of it is regulated by franchise, they have asked them as part of the franchise to do a recycling service.

As part of that, the rates have increased a little bit to take care of the recycling components. Oregon is fortunate to have very good recycling markets, but it is a fortune, at least partially, of our own making, because the State has had a tax credit program for what we call pollution control in place since 1973. We consider recycling a pollution control device.

We have had some major tax credits allocated to, for example, a very large newspaper mill to become a deinking facility. At the facility now, it takes all of the newspaper out of the State of Oregon; it can take every piece of newspaper that we can produce and still have to pull almost double that from the States around us. We now recycle 70 to 75 percent of available newspaper in the state, and it goes to that plant.

Except for tin cans, which are detinned in Seattle, and plastics, which must be shipped to North Carolina or the Far East, all other materials have markets in Oregon.

Oregon is also getting some experience in energy recovery. We have built our first 550-ton per day resource recovery plant. We were the first State to require the dual pollution control systems, the dry gas scrubbers and the fabric filter bag houses.

We, in turn, have struggled with the ash problem, and with the lack of guidance from EPA, have determined that we will require the ash to be disposed in a monofill with a leachate collection system. If, however, we determine finally that the ash is hazardous, we will require it be disposed of as hazardous, but right now the testing is very indeterminate. It is a very difficult problem, trying to test it.

Is our system perfect? No, it is not.

We have lots of old landfills that are leaking into the groundwater. Our recycling programs have a long way to go. We would like to see our participation increase, and we may have to go some day to mandatory to get that up there. We have a 52 percent goal in the metropolitan region, and we will have to get all of the other systems up and going to reach that goal.

In summary, I would suggest to you some of the same things for what the Federal Government can do as have been suggested, I think, before, actually.

One is that you spend the money on the front end of the system rather than always on the back end. Because we will never turn the system around until we begin allocating the system that way.

Senator BAUCUS. What do you mean by front end?

Ms. PARKER. In the reduction and the reuse and recycling, those three categories. We have spent almost nothing as a nation on that front end.

Senator BAUCUS. You mean in dollars. You want dollars.

Ms. PARKER. We would also like to see the Federal Government get into procurement. That should have been done a long time ago. All the State, local, and Federal Governments should be using recycled products themselves, being a market themselves, whether or not EPA finally comes up with permanent guidelines.

I suggest to you that you look in your own house first. We tried very hard to do that. My business cards are recycled paper stock. All of our paper stock are on recycled paper. I suggest everybody look around at their own government level and their own markets.

Senator CHAFEE. Is this testimony on recycled paper?

Ms. PARKER. No, because I will tell you what happened. I wrote this testimony flying out here and it had to be printed here. I didn't carry my stock with me.

Finally, the Federal Government can help by having an active effective technical assistance program. I answer questions every day in the State of Oregon about how to do a program. I imagine that the States who are sitting at this table who are probably the most aggressive in recycling are doing the same thing.

It is really too bad that people can't call EPA and ask those questions and get answers about that as they do in five of our States. That kind of help.

Senator BAUCUS. Thank you very much.

## STATEMENT OF NORMAN NOSENCHUCK, DIRECTOR, DIVISION OF SOLID AND HAZARDOUS WASTE, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, ALBANY, NY

Mr. NOSENCHUCK. Good morning. Thank you, Mr. Chairman, Senator Chafee, for the opportunity to participate in this hearing. My statement has been submitted for the record, and I will summarize. New York State and the Nation face a solid waste disposal capacity crisis. Currently, more waste is being produced than can be properly managed.

The crisis will soon intensify unless actions are taken to reduce the amount of waste being generated and to safely manage and dispose of the remaining waste. As you know, the recent 6,000 mile odyssey of the garbage barge highlighted the problem of solid waste management and disposal.

In many cases, the traditional disposal method of relying solely on landfills is no longer viable. In order to implement an environmentally sound and integrated solid waste management program, local officials must investigate all available solid waste management alternatives and decide which combination of waste management alternatives best serves the community.

Each alternative has advantages and disadvantages regarding environmental and public safety, efficiency, and cost. In New York State, our integrated solid waste management program encompasses the following waste management alternatives in the following order:

Waste reduction, first, to reduce the amount of solid waste generated;

Second, recycling and reuse to reduce the waste stream by recovery of recyclable materials, including composting;

Third, waste-to-energy facilities to combust household and nonhazardous industrial/commercial solid waste to produce energy;

And fourth, landfilling of residue from municipal waste incinerator and waste-to-energy facilities and other materials that cannot be recovered or combusted.

In order to curtail continuing degradation by existing landfills, we have required the closure in New York of many problem landfills and negotiated orders on consent with many others for closure in the relatively near future.

Of the 336 landfills existing this past March, only 38 have valid permits to operate; we have 158 under orders to upgrade or close and 140 are unregulated and we are working on permits for those or on closure orders for most of those. Only 30 of those, we figure, will end up as active landfills.

Therefore, we expect in about 10 years, we will end up owning about 100 permitted municipal landfills in New York State.

This solid waste disposal problem is expected to get worse before it gets better. As capacity declines, solid waste may have to be shipped many hundreds of miles for disposal at a substantial transportation cost.

We are not unique in facing these problems. You have heard about them from the other States. We also have problems in contamination of groundwater from many of these landfills. We have documented this from more than 65 of our active landfills.

We also did a recent department study of 15 landfills, and we found goundwater or surface water contamination at all of the sites investigated. Therefore, it suggests to us that the majority of existing landfills will eventually become candidates for some type of remediation.

Waste-to-energy facilities have experienced some problems. We did some studies of air emissions from five of the seven operating resource recovery facilities in New York, and we found out that trace amounts of contaminants are being emitted. Fortunately, none of these facilities present an increased cancer risk which pose an acute public health concern requiring facility shutdown.

In the near future, through improved operations including, where appropriate, design amd equipment changes, these facilities are expected to meet all applicable air emission standards in the State.

Attached to my testimony is a copy of the Association of State and Territorial Sold Waste Management position statement on municipal waste incinerator and municipal waste incinerator ash residue that we endorse.

We will be meeting shortly with U.S. EPA representatives to work towards implementing an alternative management structure for ash residue, as described in this position statement.

Clearly, municipal waste disposal practices must change. Cities, towns and villages will have to lessen their dependence on landfills for solid waste disposal and, we think, how to safely handle and dispose of their waste.

New York State has been aware of this growing capacity crisis and the need to shift to other alternatives for some time.

This last spring, we issued the New York State solid waste management plan which will be updated yearly. The plan set some dramatic new directions for solid waste management, principally, a shift away from landfilling in the next decade in favor of waste reduction, recycling and energy recovery.

It sets a goal of decreasing the municipal waste stream by 50 percent through waste reduction and recycling/reuse. The plan proposes more active roles for both State and local governments and emphasizes a waste reduction approach that would require legislative actions and citizen involvements which have been described in the plan.

Any material for which markets are readily identifiable can be recovered through source separation and recycling. In New York State, as in most States, the most commonly recovered materials are newspapers, aluminum, corrugated paper, glass, and mixed metals.

Much of the glass, metals and aluminum recovered in New York are in the form of beverage containers which are redeemed pursuant to the State's returnable beverage container law. Our most recent data indicate a redemption rate of about 80 percent in the State. Other materials being recovered at an increasing pace include plastics, yard wastes and other higher grade papers.

However, with recycling, the greatest impediments are: availability of durable and expanded markets for secondary materials and the public's reluctance to participate in a source separation program, what we call the convenience factor.

The Federal Government should develop procurement guidelines for materials which include recycled components. This would help create market incentives which would, in turn, stimulate local source separation programs.

We support the technical requirements proposed through EPA's subsection D criteria revisions. We support the goals to encourage environmentally sound waste management practices, maximizing the reuse of recovery resources and fostering resource recovery. We strongly support the concept of applying the criteria to all municipal solid waste disposal facilities. We must work together in these initiatives and address the solid waste disposal crisis before us today.

Thank you.

Senator BAUCUS. Thank you all very much. I think you have all done a very good job documenting the problem, that is, the problems of municipal landfills of the States and hazardous waste policies, et cetera.

I think you have also done a fairly good job explaining what you do in your own States, Mr. Deieso, in New Jersey and the rest of you, as well.

Given that, and also given the reluctance of the people in the States to be regulated by Uncle Sam, argue that, "Our State is special; we have our own set of unique circumstances; let us do it our own way," as I say, it sounds like some of you are addressing the problem with some success.

Why should there be any Federal involvement here? Can't States just continue to do this, basically, entirely by themselves, left to their own devices? Many of you talk about Federal regulations and technical assistance and guidelines and so forth. One could make the argument, I am not saying that I am, but one could make the argument that States are doing a pretty good job.

Mr. DEIESO. Senator, I say this as a former EPAer, as well. It amazes me that in recent past, how the agency has managed to misjudge those issues for which the States would be most appreciative of a Federal initiative, and those for which the Federal Government has declined or, more correctly, to this point, decided that Federal involvement is necessary.

It seems to me that there is a balance. The States need Federal support.

Senator BAUCUS. What kind of support?

Mr. DEIESO. Let's take solid waste specifically. In the case of solid waste, it has hurt us immeasurably to not have a Federal guideline for resource recovery facilities. It has hurt us immeasurably to not have a Federal guideline for landfill design.

Senator BAUCUS. Explain why.

Mr. DEIESO. We, in the State of New Jersey, will now propose a set of regulations for either landfills or resource recovery.

It becomes easier for a State to say to its residents, "These guidelines we are offering to you are as stringent or more stringent than guidelines the Federal Government has proposed, guidelines the Federal Government has carefully weighed, balancing quite a bit of scientific testimony across the board."

Senator BAUCUS. You like covering Federal regulations?

Mr. DEIESO. In simplest terms, yes. It gives us quite a bit of assurance where we are proceeding. In most concerns, it gives assurance for residents that it isn't simply one state administration and it is appointed officials that feel this initiative is necessary.

Senator BAUCUS. What about mayors, local officials? Do they agree with your statement?

Mr. DEIESO. They would. In fact, one of the questions we face, in fact, not only in solid waste, but all of the media, is there a Federal standard, and is New Jersey equal to or better than that Federal standard?

In the case of air, in the case of hazardous waste, in water, those questions are easily answered.

In the case of solid waste, we have to say, "There are no Federal regulations for resource recovery and there are no Federal regulations for landfill." So you have New Jersey to deal with, and in our best and in some, in the informal sense, the States do work together. There is a strong partnership.

We know that California or Oregon or Maryland and New York, we watch very carefully to see that we stay pretty much on par, but I have to emphasize, again, the weight of the Federal Government and its specific scientific scrutiny would be of tremendous value.

Senator BAUCUS. Would anybody else care to comment?

Mr. NOSENCHUCK. Yes, Senator. In New York State, we are moving to develop our state-of-the-art regulations. Right now, we require this by permit for any applicant coming before us for a landfill.

The same thing that Mr. Deieso said holds true in New York. People ask us, "Aren't you going too far? You are too far out in front. We don't like what you are doing. Where is the Federal government on this?"

It is my opinion we need minimum technical requirements, and I refer to these in the EPA proposed Subtitle D criteria which we endorse.

This would give us those minimum technical requirements. We need those so when we go out, and I believe most local government officials are beginning to understand the problems. They have just totally ignored this in the past: Out of sight, out of mind. Local government officials, local populus has just ignored the problem, and it does take a crisis to wake people up, and the barge did point out that there is a problem.

This has helped to that extent. We would like to see the Federal government develop the minimum technical requirements for well-designed resource recovery facilities; for landfills. We would encourage them to follow our suggestions on ash residue from municipal incinerators.

We think those are very rational and pragmatic and realistic, and we are working toward that end. A number of the States, we do work together; we do communicate one with the other. We don't work with EPA on this.

Senator BAUCUS. One could say, uncharitably, that you are asking us to do your work; you really want the cover. You agreed you want the Federal minimum standards. There is a lack of State leadership, perhaps Federal leadership.

I am just playing devil's advocate here in making that point. Are there any reasons other than Federal cover why there should be greater Federal involvement?

Mr. **Nosenchuck**. Could I make just one other observation? You know, we want to avoid what we call pollution havens in the United States. This is one of the things where the Federal Government has done a pretty good job in the hazardous waste area.

The same thing holds true when you develop municipal solid waste management things, because you have industries involved producing nonhazardous waste, and then the pressure would increase.

Why should we even consider putting in a factory in state X, Y or Z or increasing the work force there because of your tough requirements? We can go to state A, B, C and we can get by with much less.

So we want to avoid the possibility of national pollution havens. That is why we need the Federal Government.

Mr. **Deieso**. Your longstanding position, I know you fully represent the devil's advocate position by the question, but let me respond in this way. If not in this manner and if not, as you suggest, offering cover, then I see no reason for the United States Environmental Protection Agency.

The States, years ago, preceded the EPA in informing. Our State had its Department of Environmental Protection before the U.S. EPA.

There certainly was, and there continues to be, and that is, the interstate, the very complex interstate matter and the weight of the Federal Government, the ponderous process by which rules and regulations are formed, the good process, the process that is going to weigh all of those factors.

Once that is brought to bear, the States meshing and actually getting in the trenches and slugging it out is going to be easier. We definitely support that role.

Senator **Baucus**. Ms. Parker?

Ms. **Parker**. Yes, Senator Baucus. The last two days, I have been in town attending a meeting with the director of my agency with 15 State environmental agencies from around the country with Lee Thomas at EPA.

I came away pretty interested in the fact, because I work in the solid waste area, that they were begging EPA for regulation and help and assistance. I think there are two points to be made. There is certainly some about covering. It makes it easier. We haven't done as well as we should have, and it will make it easier.

The second thing, though, is that there is a lot of research and development that needs to be done. Some expensive kinds of work and for especially small States, it is very expensive. Why should we each do that when the Federal Government could do it once for us as the background for some of these regulations?

The third point is, again, I think what they were talking about, the landfill shopping that is going on right now, especially, evidently, on the East Coast, because of the lack of uniform regulations, and we would like to stop that.

Senator **Baucus**. I wonder, in addition to yourself, what is the feeling as best you can describe it within your own States among incinerator companies; landfill outfits, disposal companies, to transport the garbage and so forth? Do they tend to agree or tend to disagree with your general statement of more Federal involvement, at least at a Federal minimum, if that makes sense.

Ms. **Parker**. You are asking about the companies?

Senator **Baucus**. Yes.

Ms. **Parker**. It seems to me that if you have an environmentally conscious company who wants to do the right thing, they would rather have the same rules all over so that they don't lose business to the company who is willing to go and do less than minimum and take the risk.

Mr. **Gagliardo**. I think the consistent regulatory climate both from the standpoint of local government and from the standpoint of the waste disposal industry is a necessary factor lending some stabilization to the process of implementing facilities.

As you are well aware, the process of implementing a landfill or waste-to-energy plant or anything else related to waste disposal is a long and very difficult, technical, financial, institutional type of an undertaking and may take anywhere in the neighborhood of four to 15 years for a local government to put a facility in place.

Each time the regulatory climate changes, everything backslides quite a bit. A consistent national policy that gives local governments the opportunity to address specific instances elsewhere, standards may need to be stricter.

The Los Angeles Basin, for example, I think, is something that both local governments and the industry are very interested in. To take the role of the Federal Government one step further, we have been talking about recycling. We have been talking about removal of certain potentially dangerous materials from the consumer products' stream so that they don't present environmental health problems when they are disposed of.

The policy and the incentive for manufacturers and for consumers to move away from those types of products, I think, needs to be driven by a national mandate and national policy. It is very difficult, for example, for one State to require certain products to be eliminated from consumer products; lead from batteries.

An individual State or an individual city cannot deal with that kind of program if it is, indeed, determined that lead disposal from batteries and landfills or waste-to-energy facilities present severe public health or environmental problems.

That is another way in which the Federal Government can lend leadership and lend stability to the overall situation.

Senator **Baucus**. Thank you very much.

Mr. **Wright**. I want to second my colleague's comments on the packaging. I think we can handle most of the rest of the program. The problem we have is that 40 percent of the material is from packaging. We have no control over that. If you buy ice cream cones, they are individually wrapped in styrofoam now. It is impossible for us to develop recycling programs and remarket this material when we are flooded with all of these products that continually change on the marketplace.

I would look at product control; also look at chlorine-based compounds in the packaging industry because the chlorine is a precursor of dioxin. If you reduce the amount of chlorine going into waste-to-energy facilities from the approximate sets, we can reduce the dioxin stream.

From the State point of view, we have little, if any, control over that exploding marketplace or product.

Senator **Baucus**. Thank you very much.

Senator Chafee.

Senator **Chafee**. Thank you, Mr. Chairman. I agree with what is said about the source reduction problems. You go in to buy six small picture hooks, and it is in a blister pack. Instead of the hardware man handing you six hooks plus the six nails and putting it in a paper bag, you get this blister pack which is not only extremely difficult to open but very difficult to dispose of.

I don't know what we can do about that. I agree that there can be a much better approach. Do any of you know of any countries where they have gotten to the source? We heard previously about Japan where they were handling recycling and incineration in the best manner? Are there any countries that you know of that have gotten to the source?

Ms. **Parker**. There are some countries in Europe struggling. They are struggling with plastics.

Senator **Chafee**. I am not trying to map out a tour for us I am just curious.

Ms. **Parker**. Would you like to go to Italy?

Senator **Chafee**. I am way over in Japan now, and I am working my way back.

Ms. **Parker**. In Europe, they are really struggling with plastics, because they do burn so much of their waste. There have been a number of proposals. It is my understanding that Italy is in the steps, I am not sure they are there yet, of completely banning plastic bags at the store.

Senator **Chafee**. Mr. Commoner is shaking his head. Is that correct?

Mr. **Commoner**. Three hundred sixty-odd municipalities in Italy have banned plastic bags.

Senator **Chafee**. Plastic bags?

Mr. **Commoner**. Shopping bags.

Senator **Chafee**. The kind they give you now at the stores in lieu of paper bags?

Mr. **Commoner**. All of them.

Senator **Chafee**. There is a comment here about the bottle bill and it doing a little something, but not too much, but something.

Would all of you agree that the bottle bills help? That, of course, applies to cans; bottle bills do apply to the plastic soda bottles as well; is that correct?

Ms. **Parker**. That is right.

Senator **Chafee**. Are they effective? Yes or no?

Mr. **Nosenchuck**. Yes. In New York State, very effective.

Senator **Chafee**. Rhode Island doesn't have one.

Mr. **Deieso**. New Jersey opted for strong mandatory recycling. The important thing is to get these bottles and cans collected in one place and processed.

Senator **Chafee**. What is a higher incentive to collect them than if you get a nickle back for them?

Mr. **Deieso**. Our background says if a collector sees or hears of a bottle or a bag that garbage stays at the curb until it is properly packaged and carried to the recycling center. We think that is quite an incentive.

Senator **Chafee**. I want to hear a plea for the bottle bill.

You can't leave until I get that.

Ms. **Parker**. Perhaps that is my job, since we were the first State to do the bottle bill, and we love it and believe in it. We do get something over 90 percent return. People love it. Our survey says 90 percent of the people love it.

Senator **Chafee**. What can they do with the plastic bottles when they get them back? I can see the cans. What can they do with the plastic bottles, and if they can do it with the plastic bottles, can they do it with the milk jugs?

Ms. **Parker**. You wear it, if you wear polyester. That is where ours goes. It goes to the plant in North Carolina that makes fiberfill, and it can be processed. The plastic bottle is all one kind PET, and it can be done. It is not very cheap.

Senator **Chafee**. We have had testimony here in regard to recycling plastics; that the variance in the plastics are so substantial that it presents tremendous recycling problems. Is that not true with a bottle, for example?

Ms. **Parker**. So far, the bottles are PET, although they have a high density polyethylene base which can be pulled off and recycled. Coca-Cola, which you may or may not know, tried to play with bottles and mix types that would have been impossible to recycle.

They ran into a real flap and pulled it off the market. If the market puts in other kinds, we could have difficulty, but right now, it is technically feasible. It is not real economic.

Our bottles are being recycled because they come through the system, and the distributors looking at them, they have got bales and bales of plastic bottles. They have to pay to dispose of them, so at that point, they are glad to go get them recycled.

Senator **Chafee**. Thank you. Have any of you ever heard of a State or community where plastic bags are banned, as was stated in Italy?

[No response.]

Senator **Chafee**. Thank you.

Senator **Baucus**. Thank you all very much. I appreciate your testimony.

The final panel includes Herbert Schmertz, Public Affairs for Mobil, Inc. from New York, New York; Deborah Loon from the Citizens League, Minneapolis, Minnesota; and Michael Herz, Environmental Defense Fund from New York, New York.

We will begin first with Mr. Schmertz.

## STATEMENT OF HERBERT SCHMERTZ, PUBLIC AFFAIRS, MOBIL, INC., NEW YORK, NY

Mr. **Schmertz**. Thank you very much, Mr. Chairman. I would like to congratulate you and Senator Durenberger for convening these hearings to focus on a vital national problem with strong public health implications. I would also like to acknowledge that your staffer, Ron Cooper, showed a great interest in the public message that we put out on this subject. I want to congratulate him.

Solid waste management is not a glamorous issue. It is not healthy; it is not sexy, and it is far from profitable, but waste is——

Senator BAUCUS. Did you submit a statement, Mr. Schmertz?

Mr. SCHMERTZ. No. I was just reading from some notes, Senator. I apologize. I was involved on very short notice, and I did not have a written statement. I apologize.

Senator BAUCUS. All right.

Mr. SCHMERTZ. But waste is inevitable, and what is needed is a national commitment to wage war on waste. Every organization that you know produces waste. The nation's recycling depends upon waste from one species for other organisms. So it is within industry and from consumers.

Waste is unavoidable by production of every human endeavor. The more we produce for consumption, the more waste we produce for disposal. Instead of recognizing the inevitability of waste, society has proclaimed that waste management is best resolved on the notion of "out of sight, out of mind."

The sooner we accept that notion that will no longer be operative, the better off we will be. My message to the subcommittee for this hearing is not to announce a break-through in technology or to endorse a mystical system that magically dissolves waste into nothingness, but rather, I wish to share the committee's concern for the need to strengthen the national policy on solid waste management.

My message to this committee is simply to support the importance of public education as a fundamental requirement that must be achieved if our good nation is to gain optimum management of this critical national problem.

Individuals create an important and central ingredient in this effort. Mobil has already begun to express concern for the burgeoning expansion of public waste, and it is clear that our nation must not fall into the trap of relying upon one technique for waste management.

The government and industry deserve to see the utmost in cooperation. It is our duty to examine all viable technologies: recycling, incineration, degradability, reduction of waste, and converting waste to energy.

My message is that you can depend upon Mobil for an aggressive campaign which will continue seeking to enlighten, provoke and motivate. We hope our efforts will help to engage every relevant institution in this society to fashion a comprehensive waste management system.

While we may ultimately disagree on solutions, it seems to me we can all go forward with an effort at least to cause the public to be conscious of the waste disposal issue. Mr. Chairman, you asked me to consider industry's approach to public education of the issues involved in solid waste management.

Perhaps that approach ought to involve those matters which industry is most familiar with. First, by educating the public that the goods and comforts consumers want and enjoy produce waste. Consumers will not and should not be required to give up those comforts.

Secondly, by publicly examining on-going research and demonstrations intended to serve up new amd innovative schemes for waste management. Waste management already consumes a significant portion of industry's costs of production.

To remain profitable, industry must accurately accumulate waste management costs in planning to market goods and services. The public costs of waste management can no longer remain behind the deception available that "out of sight, out of mind" imposes. When we bring waste management out of the closet, only then will we begin to develop adequate systems of management into the public domain.

Thank you very much, Senator.

Senator BAUCUS. Thank you, Mr. Schmertz.

Miss Loon.

## STATEMENT OF DEBORAH LOON, CITIZENS LEAGUE, MINNEAPOLIS, MN

Ms. LOON. Thank you for this opportunity to testify on issues relating to waste management, and recycling in particular.

I would like to give a little background about my organization. The Citizens League, with whom I am employed as a research associate, is a non-profit, non-partisan public policy research organization in the metropolitan area of Minneapolis and St. Paul. For 35 years, we have conducted research on issues of concern to the metropolitan area relating to health, education, welfare, taxes and finance, government structure, and the environment.

Most importantly and uniquely, the Citizens League is a generalist organization that relies upon the volunteer work of citizens to form its positions.

About a year ago, the League board of directors decided that one of the organization's four studies for the year would be on solid waste management. In particular, the board was concerned that the waste management industry is being pushed into a situation in which one disposal option, namely, incineration, will be dominant and given competitive advantages through public policy over other options. Clearly, the businesses that are building incineration facilities are responding to requests from the public sector for new disposal techniques.

What is of concern to the League is that, while these new techniques are built and employed, some balance in the waste management system must be maintained.

One option the board felt may not be getting adequate attention is recycling. The study committee that subsequently was formed was given the charge to analyze the changing waste management industry and the status of recycling to determine whether we should be recycling more and, if so, how to accomplish that.

I will focus my remarks in two areas. First, on what could be done to push recycling into a more prominent role in the waste management industry; and second, on the caution we should be exercised so that, as the waste management industry becomes more environmentally safe, we do not lose sight of economic efficiency.

The Citizens League study committee which I staffed drew several conclusions about recycling. Most of them will be quite obvious to you. Recycling, first of all, is a safe waste management method. What I mean by that is there are no adverse environmental consequences known from the recycling process.

Second, and moreover, recycling is a significantly less expensive way to manage some wastes compared to landfilling and burning.

Mr. Wright, a previous witness, and I may disagree on this point, but we based our information on surveys of recyclers in the metropolitan area and the actual costs they reported.

Senator BAUCUS. That is in Minnesota?

Ms. LOON. Yes, in the Minneapolis-St. Paul Metropolitan area. In that area, the net cost of recycling runs about one-third the cost of disposal by burning or landfilling. Recycling may not pay for itself, but it costs much less than the other options.

Recycling as we traditionally think of it, however, is not the answer to the environmental problems of waste disposal. The materials we recycle today, by and large, do not pose threats to the environment when they are disposed. I am referring primarily to glass, paper, and aluminum. These products are benign.

We should not, therefore, believe that any aggressive recycling policy is going to solve our waste management crisis.

But regardless of that, recycling is both environmental and economically smart, and yet we are doing very little of it. We are recycling less than 10 percent of the potential of those recyclable materials for which we know there are markets today.

This raises two questions: Why are we recycling so little? And what can we do to get more recycling done? I would suggest that the answer to the first question presents the solution to the second.

In our estimation, we are only recycling about 3 percent of the waste in our metropolitan area because waste generators essentially are punished when they do recycle. First, for a household or a business to participate in recycling by separating the wastes means that convenience is lost and extra work is added. This makes waste management a much more complex process.

Moreover, the household or business that recycles experiences additional economic costs. In a typical situation, a waste hauler charges a flat fee for unlimited waste collection and disposal service. This means that the household that sets out two cans of waste every week pays the same as the household that sets out four cans a week. There clearly is no incentive to generate less waste. In fact, we can conclude that we are encouraged to generate and dispose of waste.

On top of that is the additional cost to contract for recycling collection service or to deliver recyclables to a drop-off location.

The household that pays this flat fee to the hauler or municipality for waste disposal plus a fee for recycling service is simply paying more because it participates in recycling. This clearly is a disincentive to recycle.

Given these obstacles, there is no wonder that we are recycling very little. Frankly, depending upon altruism to get folks to recycle is not going to get us very far.

The Citizen League, however, has concluded that it does not need to be this way. The path to more recycling is through the pocketbook, and that opportunity is right in front of us. As I said earlier, recycling costs in our community run about one-third of waste collection and disposal costs. Rather than increasing our costs of waste management because of recycling, we should be able to reduce our spending.

If fees for waste collection and disposal services were determined by the volume of waste generated, then many more people would be encouraged to recycle rather than dispose. The household that recycles and sets out only one or two cans of waste, for instance, should pay less than the neighbor who sets out four cans and doesn't recycle. This financial incentive would be the simplest and most direct motive to get waste generators to recycle.

What is ideal about the financial incentive is that it is available. It does not need to be created by public policy or taxes or penalties; it is there. The City of Seattle has a volume-based fee system such as I am suggesting. Its results tell the story: even without an organized system of recyclables collection in Seattle, about 22 percent of the city's waste stream is recycled. That is seven times greater than what we are doing in cities in our metropolitan area.

We expect the recycling industry to respond positively. Once more waste generators are separating waste for recycling; we expect to see stimulation of recycling collection businesses and expansion of markets for recyclables. And the same generators who recycle will also prefer to buy recycled and recyclable materials. The key to long-run improvement in recycling is a greater and more constant supply of recyclables through stimulation of the public's desire to recycle.

Another impression I would like to leave today regarding the changing waste management industry is that, while we strive for environmentally-sound waste management, we should not lose sight of economic efficiency. We do have that opportunity. The waste management industry is changing, and it should. But we can, over the long run, build efficiencies into the system to keep costs from ever going as far as they might.

The state and Federal Governments' roles, I believe, should be two-fold: First and foremost, establishment of technical standards and regulation of disposal techniques in order to meet environmental standards; and second, encouragement through public policies of an industry that operates as efficiently as possible.

The waste disposal system should be closely regulated, but we must be willing to limit our public control over waste management to this close regulation.

The Citizens League has opposed, in the metropolitan area, a law called "flow control designation," which was mentioned by an earlier speaker. This law gives counties the authority to control where waste is disposed. All opportunities for haulers to decide where to take waste, considering variables such as distance to the disposal sites and tipping fees, are eliminated. And once a facility has been guaranteed an amount of waste through flow control, its incentives for efficiency in operation are diminished greatly.

Consequently, the losers are Minnesota households and businesses.

I would like to conclude by reiterating the two roles that we suggest should be played by governments in waste management.

First, government should be able to regulate the waste management industry in order to meet environmental standards. But government also should be careful not to apply any public policies that will give one acceptable option a competitive advantage over other acceptable options.

Second, we have recommended that the Minnesota Legislature pass a law that would require all waste haulers to implement a volume-based fee structure for their clients. This would be the most effective way to accomlish more recycling.

Thank you very much.

Senator BAUCUS. Thank you, Ms. Loon.

[A letter from Ms. Loon follows:]

***Citizens League***

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August 10, 1987

Senator Max Baucus
Chairman
Senate Subcommittee on Hazardous Wastes & Toxic Substances
706 Senate Hart Building
Washington, D.C. 20510

Dear Senator Baucus:

I appreciated the opportunity to testify on waste management issues and recycling before your subcommittee.

While my remarks to your subcommittee focused mostly on what states could be doing to accomplish more recycling, a central theme could be applied across the nation -- it is essential that every individual become responsible for our waste management problems. We cannot pass laws that put the burden on government or the business sector alone, maintaining the ease and convenience individual waste generators are used to and expect in disposal. Permanent changes will only occur when every individual calls for them.

Our recommendation for "volume-based" waste management fees is one step. By charging for waste services based upon the quantity of waste every individual generates, most generators should become more "aware" of their waste and, hopefully, more responsible. Recycling and less generation should result.

And as individuals recycle more, they will look for recycled products when they are shopping. The market for recyclables should improve substantially as more recycling occurs at the household.

It also seems that the way to get changes in packaging practices is through the consumer. As individuals start paying for waste management based upon volume, they will look for ways to reduce their waste generation. We very likely could see consumers demanding less packaging in order to reduce waste.

*Public affairs*
*research and education*
*in the Minneapolis-Saint Paul*
*metropolitan area*

In response to your followup questions, I would like to enter our report (enclosed) into the permanent record and point to some specific sections in the report.

> Regarding our finding that the net cost to recycle is about one-third the cost to collect and dispose of waste, please see Section VII.B. on page 28. These figures are based upon a survey of recyclers in the Minneapolis-St. Paul metropolitan area.
>
> Regarding our findings, conclusion and recommendation about a container deposit system in Minnesota, please see Findings Section III.B.3. on page 21, Conclusion X. on page 38, and Recommendation VI. on page 44. The Citizens League has recommended that the state of Minnesota adopt a "triggered" container deposit system, whereby if the state is not recycling at least six percent of its waste within four years of adopting the "volume-based fees" approach, a deposit system would take effect. The reason for triggering it is two-fold:
>
> > first, deposits are proven to work, but they cover only about six percent of the waste stream and accomplish recycling at significant cost; and
> >
> > second, deposits could keep Minnesota from ever reaching the potential in recycling (which is much greater than six percent) since they remove the most valuable product from recycling programs, making them very expensive to run.

Again, thank you for the opportunity to testify before your subcommittee. Please feel free to contact us if you need more information. I hope we can be helpful in the future.

Sincerely,

Deborah Loon

Deborah Loon
research associate

Citizens League Report

# THE NEW WEIGH TO RECYCLE

Prepared by
Solid Waste Recycling Committee
Karen Himle, Chair

Approved by Citizens League Board of Directors
May 22, 1987

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NOTE: The following has been excerpted from the above-named report. The full report has been retained in committee files.

## EXECUTIVE SUMMARY

Minnesota is moving rapidly from a waste management system that is largely open and competitive, driven by private industry with public regulation, to one that is much more expensive with increased public management and investment. These changes are motivated chiefly by environmental concerns. But it isn't necessary to sacrifice economic efficiency in the process. We have the opportunity to meet both goals.

Recycling fulfills both criteria for a desirable waste management option -- it's an environmentally sound way to manage waste and it can build economic efficiency into the total system, if the system is structured correctly. Recycling can and should be an important piece of our waste management strategy.

We should use caution, though, when thinking of recycling as a waste management option. It is a very viable option, but it is not the grand solution to our waste management problems. Only to the extent that the materials being recycled are hazardous will recycling prevent environmental damage. As it has been practiced, recycling has not done this, because waste materials like paper, glass, and aluminum are benign when disposed.

If the two principal waste management options -- disposal and recycling -- were set side-by-side, recycling would be the competitive choice. For one, it makes environmental sense. There are no known hazards from the process of recycling, and reuse of materials means that natural resources are conserved. But more compelling, disposal is more than twice as expensive as recycling. And when incineration replaces landfilling, the difference will be even greater.

Today we are recycling only three percent of our waste stream. The Metropolitan Council has set a regional goal that 16 percent of the waste stream be recycled by 1990. That's a substantial increase, but it's too modest. At least one-half of all waste is recyclable.

Recycling is an under-utilized waste management option -- primarily because the structure of waste management rewards generation and disposal of waste and discourages recycling.

The pricing structure of waste services keeps us from ever realizing the savings that would be expected from disposing less and recycling more waste. Fees for waste collection typically are flat today, not adjusted by changes in volume. So someone who sets out two cans of waste for collection and disposal pays as much as does the neighbor who sets out four cans. Consequently, there's no incentive to reduce the volume of waste, by recycling or other means. If anything, there's a reward for greater disposal, since the fee doesn't increase with volume.

In fact, the existing fee system discourages recycling. If a household (or a municipality on behalf of all households) should employ two services -- disposal and recycling -- then its total spending will be increased. The flat disposal service fee means that the addition of recycling will result in greater spending on waste management. This added expense is a main reason recycling is hardly used today.

It doesn't need to be this way.

The Legislature should require that fees for all waste management services be based upon waste volume. Under such a policy, all methods of safely handling waste -- recycling, incineration, landfilling, and others -- can compete fairly. Recycling will be more widely utilized once households and municipalities realize that it can be a cost-control tool. A strong recycling industry will result, with greater supply, expanded collection businesses, and better markets.

Other measures should be taken to ensure that the waste management system operates with efficiency, with no option given unfair competitive advantages over others. Counties' flow control authority, for one, should be phased out. This control allows counties to direct waste to particular disposal facilities. It's not necessary, now that the Legislature has set a deadline by which only environmentally proven facilities can operate. And it produces an unbalanced, nearly non-competitive, system.

Public information programs should be careful not to favor incineration as the solution to waste management. This sends the wrong message, suggesting that Minnesotans don't need to worry, that incineration solves all environmental problems.

Another option for increasing recycling is a container deposit system, which would retrieve about six percent of the waste stream for recycling. That's twice today's level of recycling, but significantly less than recycling's full potential. Minnesota should not implement a container deposit system today because it would keep us from ever reaching that potential in recycling.

Container deposits would "skim the cream" from recycling programs, causing their revenues to fall dramatically and, consequently, operating costs to rise. Recycling of materials not covered by container deposits would become very expensive, and likely would not occur. Also, a container deposit system itself is an expensive way of doing recycling. It will increase substantially consumer prices on the covered products due to new handling costs. These two new costs -- more expensive recycling services and increased product prices -- mean that we are going to spend a lot more to accomplish less recycling than is possible through volume-based pricing policies.

But because we can't guarantee absolutely that volume-based pricing of waste services will result in greater and more stable recycling, the Legislature should pass a law that would "trigger" a container deposit system. Container deposits would be implemented if, after four years of volume-based fees for waste services, we are not recycling at least six percent of the waste stream.

## CONCLUSIONS

I. The Legislature should regulate waste management based on results that can be attained, rather than on the impression that one management method is inherently superior over all others. Any waste management system should, first, strive to safeguard the environment and the public from damage due to waste disposal and, second, should operate with as much economic efficiency as is possible.

Recycling is not inherently superior to landfilling or incineration. It is *not* the grand solution to our waste management problems, but it *is* a viable option which is being under-utilized. Its use presently is discouraged by the structure of the waste management system.

A system in which only environmentally acceptable management options are allowed to operate is essential. This might include landfilling, incineration, recycling, and any other acceptable options. Some technologies might need to be added to some of these to guard against environmental damage. For example, landfills need to be well lined and use leachate collection systems to meet environmental standards. And incineration facilities might need scrubbers and special bag houses to collect emissions. But the key is that only techniques which meet environmental standards should be allowed to operate. And no techniques should be excluded arbitrarily.

Once only acceptable options are operating, they should be allowed to operate side-by-side, with none given advantages through public policy over the others. They should be given the opportunity to compete for waste on equal terms. This is the way to achieve the greatest economic efficiency.

II. Recycling is an environmentally acceptable way to manage waste and it could build economic efficiency into the management system. It meets, therefore, both criteria for a good waste management system.

Recycling is not known to pose any risks to the environment and it helps to conserve natural resources. Recycling collection and processing costs less than waste collection and disposal and, therefore, could be a strong competitor for waste supply.

If source separation is encouraged in order to generate recyclables, then the first step toward better management of household hazardous wastes would be taken.

III. But recycling as a waste management option is under-utilized today. Even though recycling should cost less than waste disposal, households, businesses, and other waste generators do not have the incentive to consider recycling. And few private firms are getting into the recycling business.

The Metropolitan Council and several counties are incorporating recycling goals into their waste management plans. They also are giving grants to municipalities and private recyclers as financial support for recycling activities.

But the Legislature, Metropolitan Council, and counties are focusing most of their attention on another method of waste management, central processing. They should give equal attention to all management options, including recycling. They should determine what needs to be done to give recycling the opportunity to become more prominent in waste management.

IV. The goal of recycling 16 percent of the waste stream is too modest, since at least one-half of the stream is composed of materials that can be recycled today.

Granted, 16 percent would be a significant increase in recycling, but the potential is much greater. Based upon studies of the composition of the metropolitan area's waste stream, at least one-half of all waste generated is made of recyclable materials. These include paper, glass, aluminum, metals, and yard wastes.

V. The pricing structure of waste management today rewards the generation and disposal of waste, and discourages participation in recycling.

Most households and other waste generators can dispose of unlimited amounts of waste without financial penalties. There is no differential pricing for collection and disposal services based upon the quantity of waste they generate, so there is an incentive to dispose of waste. Clearly, this discourages use of any other management options, including recycling.

Recycling collection and processing costs less than waste collection and disposal. This savings should be experienced by waste generators who choose to recycle. But the savings never are seen by waste generators, since the fee for waste collection and disposal is not reduced as the volume of waste disposed is reduced. Moreover, should generators pay a fee for recycling services, their total spending would be higher than if they just used disposal services.

Households, businesses, and other waste generators do not pay the "true costs" of waste management today. If future costs were included in fees -- cleaning landfills and replacing them with new generation landfills that use liners and leachate collection systems -- disposal costs would be significantly higher than they now are.

Hence, because there is no financial penalty for disposing of waste and no reward for recycling it, most waste generators don't consider recycling. Accordingly, few private entrepreneurs are willing to offer recycling services because there is little assurance of a supply of recyclables.

VI. Recycling will have its best chance at becoming a viable waste management option when barriers to establishing recycling businesses and using their service are removed. The biggest barrier is the economic disincentive to recycle (discussed in conclusion V.). Waste generators must have the incentive to consider using recycling. Private firms need the economic rationale to consider getting into the recycling collection business. To spur such activity, the economics of waste management must be restructured.

Public subsidies and grants might help. But if recycling ever is to become a serious, stable, long-term management option, it must be adopted by the waste management business community as a viable venture. This means that its true economic advantage over other options must be uncovered. A true dollar value, and true management costs, must be put on waste.

Households, businesses, and other waste generators must be able to see how they can benefit from the economic advantage of recycling. Their spending on waste management must decrease as less waste is disposed and more is recycled. Supply of recyclables, in turn, will be greater and more constant, and more recycling businesses will emerge throughout the metropolitan area, making participation easier. Markets for recyclables will respond to the increased activity.

VII. No waste management option should be given competitive advantages through public policies over other acceptable options.

Public policies creating the emerging waste management system give competitive advantages to central processing. The advantages, in particular, are counties' agreements to pay a fee for waste processing whether or not that waste is delivered to a facility and counties' requirement that haulers deliver waste to the facilities.

As long as public policies give such competitive advantages to certain techniques, such as central processing, and as long as such techniques are espoused as the solution to waste management, recycling never will reach its potential. Private sector entrepreneurs will be unwilling to take risks in recycling and waste generators will believe that they do not need to participate in recycling. Diversity and efficiency in waste management will be eliminated.

The competitive advantages to central processing should be phased out. But as long as they temporarily are continued, other public policies must be designed to help recycling overcome existing disadvantages. Preferences to one option must be balanced by preferences to other management options.

VIII. The state, counties, and municipalities should not control where recyclables are delivered, processed, or sold.

For example, counties should not require that recyclables collected by a program using county funds be delivered to a particular processing facility. This "flow control" gives a competitive advantage to the operator of the processing facility, who profits from the recyclables delivered there and also is a collection contractor in competition with others. Its ability to keep recyclables it collects and sell them means that it can fulfill any collection contract at a lower price than other bidders. Such noncompetitive policies discourage entry and expansion in the recycling industry.

IX. Even if these efforts (Conclusions VI and VII) do not immediately and dramatically increase recycling activity, they should encourage a more rational waste management system and a stable, healthy recycling industry for the long-term.

X. A container deposit system could substitute near-term gain in recycling for the long-term potential to recycle a significant portion of the waste stream. But Minnesota should establish a container deposit system if volume-based pricing does not successfully move recycling ahead.

Minnesota has the opportunity today to create an effective, efficient waste management system that would encourage strong, long-term recycling programs. A container deposit system could severely harm that opportunity.

A container deposit system has many positive aspects. Based upon the experience of other states, Minnesota could expect that almost all beverage containers covered by the deposit would be returned to distributors and likely would be recycled, reducing waste and litter. The concept of giving waste generators an economic reason to participate in recycling is right on target. It would succeed with the materials that would be covered by the container deposit system.

But a container deposit system would satisfy only part of the goal of building an environmentally acceptable waste management system that operates with maximum economic efficiency -- it would be an environmentally acceptable way to manage the materials it covers, but it would cause recycling to cost much more than necessary, would keep Minnesota from ever reaching its potential in recycling, and would be an inefficient way to collect recyclables. It would be a different matter if the materials covered by container deposits posed hazards to the environment, but they do not.

** A container deposit system will force Minnesotans to pay more to recycle than would otherwise be necessary. It will increase the costs to recycle in two ways -- it will cost consumers $30 to $100 million per year in increased product prices and will raise the price to use recycling services. Product price increases will come from the new handling costs experienced by retailers and distributors due to the deposit system (estimated on 2.2 to 5 cents per container based upon 1.5 to 2 billion containers). The price increase in recycling services will be the result of the deposit system's preemption of the materials most valuable to recycling programs. Since recycling services depend upon two sources for operating revenue -- material sales and service fees -- as material sales decline, the service fees will be increased in order to recover operating expenses.

** A container deposit system very likely will keep recycling from ever reaching its potential as a waste management option, because the use of recycling services will diminish as their competitive advantage over disposal options falls. Container deposits alone would manage about six percent of the waste stream. More comprehensive programs stimulated by the volume-based pricing mechanism could manage a significantly greater proportion of the waste stream. The co-existence of container deposits and recycling programs may not be entirely incompatible, but more comprehensive programs clearly will depend upon how much we are willing to pay for them. Because container deposits will preempt the most valuable materials, the fees charged by recycling services will be forced to increase. With such a price increase, the use of such services consequently will fall, resulting in less recycling than is the potential.

** A container deposit system is a "mandate" approach to getting participation in recycling. It penalizes those who do not recycle, rather than offering an incentive to recycle as does a volume-based fee mechanism. If the deposit system targeted materials that posed hazards to the environment, then the "penalty" approach would be acceptable. But the glass, aluminum, and plastic containers covered by a deposit system do not threaten the environment.

** A container deposit system ignores the dynamics of markets for recyclables and is vulnerable to inefficiencies as a result. The "penalty" approach of the container deposits means that the materials will be collected for recycling no matter what price the market is paying for them. Market-driven efficiencies will be absent. On the other hand, programs operating under a volume-based fee structure will charge service fees that are sensitive to market dynamics. As the market price for recyclable aluminum falls, for example, the recycling service's sales revenue will fall accordingly. The service accordingly will raise its fee to cover the revenue loss, causing a decrease in the use of the service. This means the supply of recyclable aluminum will respond to market characteristics.

Comprehensive recycling that is activated through the volume-based pricing mechanism should be able to recycle much more than a costly, inefficient container deposit system would. But if volume-based pricing of waste management services does not result in greater recycling, say six percent of the waste stream, then it would be appropriate for Minnesota to implement a container deposit system.

## RECOMMENDATIONS

I. The Legislature should require that fees for waste collection and disposal services be volume-sensitive.

A primary barrier to increased establishment and use of recycling collection and processing services is that waste generators have no incentive to choose any management option other than disposal. They are financially penalized when they do.

Waste generators should be charged for waste collection and disposal services based upon the volume of waste they set out for such services. If they reduce their waste volume for disposal, then they should be charged a lower fee. And they should know exactly how much they are paying for waste management. With this, many generators will be inclined to reduce their waste volume through means such as participating in recycling. In turn:

-- supply of recyclables will be increased and be more constant,

-- business activity in collecting, processing, and recycling the materials may increase due to the availability and dependability of a greater supply of recyclables and demand from waste generators for such services, and

-- the market demand and prices for recyclables may be affected, very likely positively.

Specifically, the Legislature should require municipalities to ensure that bills for waste collection and disposal services are sensitive to volume. Costs of such waste services should be positively responsive to changes in the volume of waste they handle. For example, a household that generates four cans of waste per week for disposal should pay more than a household of two cans per week. If the volume of waste to be disposed is reduced because the waste generator chooses to participate in recycling or use any other acceptable option, then that generator should be rewarded with a lower waste management fee.

The three billing systems now used need to be adjusted:

A. Every municipality with an open hauling system of waste collection should pass an ordinance to require waste haulers to offer households and businesses a service fee based upon volume.

B. Every municipality with organized collection of waste should establish in its contract(s) with waste haulers and disposal facilities that the fee be determined by the volume of waste managed. The municipality then should bill households and businesses that receive those services based upon volume of waste.

C. Every municipality that covers its organized collection costs through its general fund rather than by billing waste generators should discontinue that policy. Instead, it should adopt a system of directly billing waste generators and basing that bill upon waste volume disposed. This could be done with a special waste management bill, a line-item on the utility bill (e.g., water and sewer), or by requiring waste generators to purchase special waste bags or tags for waste cans. With the latter option, the waste management fee would be paid through the bag or tag purchase. (See Appendix E for examples of implementation of volume based fees in other cities.)

II. Municipalities should develop and implement public information and education programs in coordination with recycling operators. The Metropolitan Council also should develop general public information programs that can be used by municipalities.

Municipalities should conduct information programs through such means as their newsletters or utility statements. The programs should include information about recycling opportunities and how volume-based fees work. They should point out the financial advantage of separating waste materials for recycling and should describe how to do backyard composting.

Operators of recycling programs, because they should have a vital interest in making their program succeed, should be responsible for any aggressive education or advertising. This could be done in coordination with the municipality's information efforts.

The Metropolitan Council should develop general public information programs, such as films and brochures, that could be used by municipalities. They should give general information about recycling services and how a waste generator can control costs by participating in recycling.

III. Competitive advantages to any waste management method must be phased out.

The Legislature has set a deadline that only allows use of environmentally acceptable management techniques, which might include landfilling, incineration, and recycling. Once it is satisfied that only proven, acceptable techniques are operating, the Legislature should not allow any unit of government to give preference to any one technique over the others. It should enable competition on an equal level among facility operators for waste supply.

The following action should be taken:

A. The Legislature should phase out the counties' "flow control" authority. It is inconsistent with the goal expected of public policies, which is to have an efficient waste management system. Flow control creates a lopsided system in which one facility is arbitrarily favored over all others. Moreover, flow control is not needed if only acceptable waste management techniques are operating. Haulers should be able to select where they will deliver waste for disposal based upon facility location and costs. Facilities, in turn, will be pushed into more efficient operation. Existing contracts between counties and facility owners/operators would not be invalidated by this legislative action.

B. Counties should discontinue public education programs that suggest that central processing facilities will take care of all waste without ramifications, and that there is no need to consider other management options.

C. The Minnesota Pollution Control Agency should place equally stringent environmental protection requirements on all disposal techniques. For example, it should require that every landfill facility either employ liners and leachate collection systems or assume financial responsibility for future cleaning of contamination.

This should force landfill operators to charge the "true costs" of landfilling. Incineration facilities also must have the necessary protection equipment to meet the PCA's standards. This might include scrubbers and bag houses.

IV. Until advantages that some waste management options enjoy are phased out, temporary public financial support should be given to recycling and other acceptable options.

These public subsidies could include:

A. Continuation of grant and loan programs the Metropolitan Council has been running, but focusing on capital grants to private businesses wishing to implement or expand recycling collection enterprises. These grants could be given for purchases of equipment for recycling collection or processing, as an example.

B. Continuation of programs that make payments based upon the tonnage recycled, but allowing such payments to be made to program operators, including private businesses and community groups.

The source of funds for these subsidies could be an extension of the existing landfill surcharge to central processing facilities. A preferred source of the funds would be a user tax placed on households, businesses and other waste generators who use waste disposal services. This would be levied by the municipality, the appropriate body to run tonnage payment and public information programs. An advantage to a user tax is that the waste generator would feel its effects directly, creating an added incentive to consider using other waste management options. The landfill surcharge, which is the current source of funds, is paid by the waste generators but it is not a direct tax.

Subsidies should not be given for ongoing operating support of recycling programs.

V. Municipalities should insure that recycling opportunities will be available by a determined date to all households, businesses, and other waste generators.

When a municipality passes its volume-sensitive pricing ordinance, it also should set a date by which time curbside recycling services will be available throughout its jurisdiction. If a recycling opportunity is not available in any part of the municipality by that date, then the municipality should contract for such service. The ordinance should establish licensing procedures for recycling operators, including waste haulers who may wish to offer recycling collection services and other recycling collectors. The municipality should be careful not to contract for service in a way that would put existing collectors out of business.

Recycling collection should be offered at least once a month and on the same day as waste collection. Making recycling collection convenient for the waste generator is a key to getting participation.

Each municipality also should look into its standing ordinances to determine if any block participation in recycling. For example, each should investigate whether its apartment building codes need to be amended to allow apartment owners to set up containers into which tenants can store recyclables. Each municipality also should amend any ordinance that prohibits backyard composting. The ordinance instead should establish what forms of backyard composting are allowable. And it should set up a system of monitoring composting for environmental safety.

VI. The Legislature should "trigger" a container deposit system if Minnesota is not recycling six percent of its waste by four years after volume-based pricing of waste management services is required.

At the same time the Minnesota Legislature adopts volume-based pricing, as recommended above, it should pass a law for a container deposit system, but delay the system's effective date to four years after passage. Container deposit then would go into effect if other recycling approaches have not succeeded in recycling at least six percent of the waste stream.

A reasonable benchmark for success is six percent -- approximately double what is being recycled now -- because that is the amount that would be recycled through a container deposit system. If Minnesota cannot recycle six percent of its waste without a deposit system, then it would be appropriate to implement container deposits. But if more than six percent of Minnesota's waste is recycled without deposits, then a deposit system would only harm that success and keep the state from reaching even greater recycling prospects.

Senator BAUCUS. Mr. Herz.

## STATEMENT OF MICHAEL HERZ, STAFF ATTORNEY, ENVIRONMENTAL DEFENSE FUND, NEW YORK, NY

Mr. HERZ. Thank you, Mr. Chairman.

I have submitted written comments for the record. They sound like many of the themes we have already heard this morning. I will try not to be repetitive.

I think that the testimony we have heard makes it altogether clear that this country is now in the threshold of significant transition in how it handles its solid waste. Just how smooth that transition will be and where it will lead remain unclear but depend, in large part, on what it is the Federal Government does.

No area of government activity has perhaps been of more exclusively local concern historically than solid waste management. The message, I think, from all the testimony today is that that has changed.

It is not simply that garbage is moving interstate increasingly; it is also that solid waste management has become a vital issue of the public welfare and confronts the nation as a whole. And therefore, it is not something that the Federal Government can and should ignore.

It won't be a surprise to hear me say that our general views on solid waste management are in favor of a balanced program with fullest reliance on the items of the topic withstanding hierarchy. What I would like to do is just touch on four general areas where I think the Federal Government has an important role to play in getting us toward that sort of a waste management scheme.

The first is simply to go down the RCRA path charted a decade ago, but this time to do it with real commitment and real conviction and real money. That means EPA waste studies, waste reduction studies, in particular. It means grants for states and municipalities. It means Federal support for demonstration projects, for private research. It means an insistence on comprehensive state planning. All these things are in the books now, but they have generally been ignored as the D in Subtitle D, as people often say, now stands for death.

The second is to strike at the problem at the source. This has come up today in two separate ways. The first has to do with reduction. It is clear that perhaps the best candidate for a Federal legislative initiative has to do with regulation of the packaging stream, both to reduce its size and to ensure that it is consisting of recycling components.

This is not something that the states want to do or that they can do as effectively as the Federal Government, given the national marketplace. There is a vacuum that the Federal Government could easily fill, and I would suggest consideration of such proposals as requiring components of a package listed on the label on that package.

To label packages according to their recyclability, the more apt their nonrecyclability. The Coke can was mentioned. Showing real chutzpa, the Coca-Cola labeled that can a recyclable can. In fact, that, as was testified, was not recyclable; in fact, would have supplanted the great recycling success story in this country with the aluminum can.

If they had been required to put on that can, "non recyclable can; this product cannot be recycled," I don't think the project could have left the drawing board. I would also consider variable sales taxes to recyclability of a product. This is something that is under intense consideration in New York State, a ban, out-right ban on certain materials or general guidance for packaging of components at the regulatory level.

The second and, I would say, perhaps even more important way of tackling the problem at the source has to do with not so much encouraging recycling but avoiding toxic problems in disposal. This has been best illustrated in the raging controversy over incinerator ash, and you will hear from many sources, and I would like to reemphasize, that the ultimate solution to dealing with the hazards of incinerator ash is to keep the key contributors to that hazard, which are the heavy metals, out of the product stream.

This is, again, an ideal area for Federal initiatives. It is something that we have done before with PCBs, with asbestos, with lead in paints and with a number of pesticides.

There have been many things that were entrenched in the product stream but for which substitutes exist and the substitutes could be required at the Federal level. They aren't being used because they are more expensive. One reason they are more expensive is that the costs of ultimate disposal are not factored in.

The third general area is market stimulation. Again, as we have heard this morning, the biggest barrier or at least the biggest perceived barrier to large-scale recycling is markets for the materials that are collected.

Once again, the original RCRA had provisions in this regard. Subtitle E of RCRA, which never gets mentioned, in fact, assigns an important role to the Commerce Department. It is devoted to the Commerce Department's role in stimulating markets.

Commerce Department has shown no interest in doing that. Nor has EPA. The Federal procurement program would be a critical boost to markets for secondary materials. For eleven years, now, EPA has failed to get out procurement guidelines, except one has been issued, but none of the others.

That requirement was in the 1976 legislation; it was amended and reiterated with specific deadlines in 1980. It was amended and the deadlines again are changed to reiterate 1984, and EPA continues to sit.

The Environmental Defense Fund, two and a half months ago, notified the administrator of our intent to sue to force promulgation for those guidelines. We had hoped that the letter itself might shake at least a final paper guideline. Now that that has not happened, that lawsuit will be filed soon.

One key point to remember with regard to Federal participation in the stimulation of markets: I would call for an extremely interventionist approach.

Before that is dismissed as inappropriate public policy, bear in mind that the key competitor for recycling, for dollars and, to some extent, for wastes, is the resource recovery waste standard.

The only reason those are economically feasible at all is that the product they sell, electricity, has to be bought by the utilities under PRPA. So with regard to, and utilities are not any more enthusiastic about buying electricity from waste energy, and they have been for coke generation and the whole problem of PRPA, I don't talk to the repeal of PRPA, but bear in mind that Congress has not simply stimulated the market for electricity; it has legislated into existence, and it should provide similar support for the recovery of materials.

Then just finally, the last area mentioned by everybody, and I second what has been said, is the need for comprehensive stringent Federal standards governing incinerator operation, ash disposal, landfill. As such, I refer you to three bills introduced on the House side by Representative Florio which, by and large, we support.

It provides a sound basis for Federal legislation in this area, and similar legislation is expected to be introduced in the Senate, and we would support it.

Thank you very much.

Senator BAUCUS. Thank you, Mr. Herz.

Senator Lautenberg has joined us. He is a very able Senator from the State of New Jersey. Do you have a statement you would like to give at this time?

## OPENING STATEMENT OF HON. FRANK R. LAUTENBERG, U.S. SENATOR FROM THE STATE OF NEW JERSEY

Senator LAUTENBERG. Thank you, Mr. Chairman. I want to commend you for holding this hearing. I am interested in the unanimity of view. It seems everybody has agreed on several things here; but the one thing that everybody has agreed on that stands out is that no one is right, and that is very interesting, Mr. Chairman. But obviously, we had to hear all of these views; all of us are desperately looking for ways to deal with our trash.

One of the ways is not the way we have suddenly had to deal with it in New Jersey, by transporting it out of State at incredible costly increases, big increases in fees for the residents of the communities. Sooner or later, we are going to have to agree on some course of action that not only is environmentally sound, but compatible, we hope, with our physical ability to deal with the problems and not to preclude companies from creating products that people want but, rather, hopefully, to find a way that the product can be recycled, reused, however we do it.

Again, for Senator Chafee, who has had such an active interest in a better environment, it is a pleasure to be with you and to hear and read the testimony of these expert witnesses.

Senator BAUCUS. Thank you, Senator.

Senator CHAFEE. Mr. Chairman, unfortunately, I have to leave at noon, and first, I want to thank Senator Lautenberg for those kind comments. I want to thank all the witnesses.

This is something that is right on top of us now. The feeling is and many have stated, as one witness, said, that of all governmental inactivity, none has historically been more of local concern than waste disposal, which is true. I am glad that each of you have raised the point of what role the Federal Government has, as you see it.

I think we can have a role. This has been very helpful to me and, I am sure, to the other members of the subcommittee.

I am particularly interesting in getting back to the source. Whether we can press that far, I don't know. I certainly hope we can. Obviously, there is resistance when you go back to the source. There is this preconception of what can and cannot be done, but we are certainly going to try. I think the Congress would be much more receptive because of these problems.

I must say that in a backhanded way, a great service was done to this Nation by that wandering barge. It brought everybody's attention to the problem. So these have been good hearings, Mr. Chairman. I want to thank you very much.

Senator BAUCUS. Thank you for your keen interest.

Mr. Schmertz, as a representative of Mobil Oil, which makes plastics.

Mr. SCHMERTZ. Yes.

Senator BAUCUS. What should we do about plastics? What idea does Mobil have?

Mr. SCHMERTZ. Some of the plastics, as you know, are biodegradable, and we are doing a lot of research on that. Some are biodegradable by the Sun. We have just started some research on that kind of degradability as an alternative to biodegradability.

They also are incineratable and provide a very good source of incineration, so that those three things present real possibilities in terms of waste management of plastics.

Plastics are certainly a major part of our lives. I mean, everybody has come to except them, want them and expect them. The management of them, they present about 7 percent of the waste disposal problem at this point, but they do present a particular problem in some instances when they are not degradable.

In those cases, they can either be incinerated or they do provide, where landfill is still available, a very stable source of landfill material.

Senator BAUCUS. Which plastics are degradable?

Mr. SCHMERTZ. I am not technically able to answer that, Senator. I know that some are and some are not.

Senator LAUTENBERG. Mr. Chairman, if you will forgive me for jumping in, I come from the State of New Jersey which has the big coast line, and I will have to tell you the plastics problem is one of the most serious waste problems that we have.

These things are like boats out there. They kill sea animals. We saw a sea turtle that died and the plastic that he ingested survived after the turtle decomposed and still was ready to kill the next sea animal and turtles. That stuff is awful.

Mr. Schmertz, I respect your company and its position, but we can't be casual about the plastics problem. We have a bill I have introduced. Hopefully, we are going to ratify Annex V to the MARPOL agreement. Plastics are wonderfully convenient, but I will tell you, if we don't find a way to deal with their disposal, we are creating problems that we had never anticipated. Forgive me, Mr. Chairman.

Mr. SCHMERTZ. Can I comment on what Senator Lautenberg said.

Senator **Baucus**. Certainly. While you do, crank in another component, and that is the dioxins. I am wondering the degree to which plastics can be incinerated to avoid the problems, the emitting of dioxins, either in the air or in the ash.

Mr. **Schmertz**. The problem you have alluded to or discussed is a major problem in this country, and that is the individual's abuse of the disposal of plastics, throwing them in the ocean, throwing them in the streets, throwing them down sewers, all sorts of places.

There is a vital need in this country for a public educational program for the individual to treat the stuff that he is throwing away in a more respectful manner. When you travel around Europe or the Far East, you don't see that kind of garbage being thrown into oceans or onto streets. The cities are essentially a lot cleaner than they are in this country.

So that it is an abuse of individuals throwing things where they shouldn't be throwing them. There is a need for a massive public education program. If the Federal Government would play a major role in that, I would support the Federal Government's activities to educate the individual to rational and respectful disposal of those kinds of product. Because in the final analysis, you can't take those products away from the individuals. They have to be educated to dispose of them properly.

On the dioxin again, I am not all that technically competent to answer. It is my understanding that the modern incineration processes that are being developed, and we have a lot of faith in future technology in this area, also, essentially can incinerate these things and deal with the dioxin problem.

I would be happy, if I could, to present some further material of a technical nature that I am not competent to deal with.

But it is my understanding that a new and modern technology can and will deal with that. To foreclose it, a technology that is really in its early stages, and say it is not going to be able to deal with it, I think, would be a mistake. Clearly, technology is moving in this direction, and we believe we can and will do it.

Senator **Baucus**. Thank you. Senator Durenberger, the ranking member of the subcommittee and, frankly, the very Senator who has been very active in this area of waste disposal is here now. Senator, since you are a leader in this area, I wondered if you had any statements to make.

Senator **Durenberger**. Mr. Chairman, that was very kind and very generous. I have to apologize for not being much of a leader in this field this morning because I was stuck, literally stuck in another hearing all morning long. I wanted to be here to say something nice on behalf of a classmate of ours, Ms. Loon, who is testifying from a rather unique perspective here today and also to say something special about the Citizens League, which she represents and which I used to be very, very active in.

It is a unique institution that everybody tries to emulate around the country, but nobody can, and it produces not only people like the witness before us today, but a community that is normally out ahead of the curve on a lot of these issues.

We don't, very often, have an opportunity for a witness from the Citizens League to be here, and I am glad that you made time, Mr. Chairman, in your leadership role in this subcommittee for not only her testimony but that of the others, as well, and I appreciate it.

Senator BAUCUS. Any other questions?

Senator LAUTENBERG. I just have a statement, Mr. Chairman. Mr. Schmertz, I heard you say that you thought an educational program would deal with it, and you could see the Federal Government involved in that.

I also heard you say a couple of times that you didn't have the technical knowledge to comment on whether or not we are going to create problems as a result of the incineration of plastics or how we might deal with the degradability question.

I would submit that I don't think it is very good judgment if you don't have that knowledge to appear here, Mr. Chairman, as an expert witness. In all due deference, if you have another field of expertise, I think you ought to testify on that, but when we are talking about a question like this, a very serious question, and here is a major company that takes pride in the fact that they are involved in public affairs, and I think it is fine.

As I said earlier, I have great respect for the company, but I think if you are going to be a player in the game, you ought to come in with the same cards as everybody else.

The questions are so fundamental. What do we do about it? Well, we can stand on our heads and try to educate all we want, but some people, a lot of them, are going to flunk the course, and we are just not going to be able to get that attention unless we show that by limiting, by curtailing the disposal of these products from their inception, that we are not going to get enough people to walk over there and flip it in the can.

All of us have seen disgusting exhibitions of total disregard for the environment. It has to start by making a product that we can either dispose of easily or that, by itself, degrade under natural circumstances.

I really do think that it is a mistake to believe that if you propose here a total education system that that is going to wash through either the Congress or the American people. I just don't see it happening.

I am on your side, not with the product, but I would like to see industry and the environment getting along well together. We are terribly dependent in our country upon the chemical byproducts in industry. My State is number one. We have over 100,000 employees. Chemical products is the biggest industry in our State. We respect it greatly.

I have seen a lot of forthright leadership come out and say, "Okay, we want to live in that community. Our kids are there, our families are there. We want to enjoy the community. We want to solve the problem, too," but Mr. Schmertz, your testimony doesn't suggest that. I really don't like that.

Senator BAUCUS. In all fairness to Mr. Schmertz, I might say to the Senator, we are going to have other hearings on this subject. At those other hearings, there will be representatives from the cities that will be present to testify to their points of view. Mr. Schmertz was asked to testify not from the point of view of technical competency on the disposability of plastics or whatever, the degree to which dioxins are or are not permitted in incineration of plastics, but, rather, on the public education kinds of programs that are needed.

There are roving opportunities for other witnesses to address those technical problems. I just must say, in all fairness to Mr. Schmertz, he was not asked to be technically competent on those points.

Senator **Lautenberg**. Mr. Chairman, when an opinion is offered and you have three panels, for us to try and get a balanced point of view, it really would be good not to hear that it is my understanding that these things can be done, and I don't want to diminish Mr. Schmertz' education, position, knowledge, et cetera. Obviously, he is someone who his company thinks well enough of that they want to expose him to a situation like this.

Mr. **Schmertz**. I understand your frustration, Senator. I would just like to say that I came for one single purpose, and that was to express the view that I don't think the public is aware of this problem, and that I thought that if I could express the need to lighten the public's consciousness that there is a waste disposal problem that would make arriving at the solutions a lot simpler and much more supportable by the public.

I don't know what the solutions are, and I don't profess to know what the correct solutions are. After listening to the first two panels, I am not sure that you could come to a conclusion on what the correct solutions are.

But I do know that the public is not aware of the magnitude of this problem. The first step is to become aware of the problem of. If I brought that message forward in any sort of a way, I think the morning is a success.

Senator **Lautenberg**. I respect your statement.

Senator **Durenberger**. Mr. Chairman, if I may be permitted kind of a personal reaction to my colleague from New Jersey, I first met him sitting at a dais of about 1,000 people. It was the longest dais I have ever been at. He told me he was a nobody, but I found out later, this was before he became a candidate of his party from New Jersey for the United States Senate, I found out later that he was one of the most respected business leaders in America, and for some strange reason, he was abandoning all of that accomplishment to become a part of the 100 members of this body.

Particularly, I think since we have been on the Clean Air Act and some of the ancillary issues, I have heard him express not only where he comes from in the geographic but I think, and this is an important message to the chemical industry at this time, in particular, and the refiners and everyone else, where he comes from in a personal sense in terms of all of that background.

I think his party is blessed to have him as an archetypical looking Republican or something like that, to be in the other party, and to a degree, it is a blessing to all of us to have him with that background speak out so strongly on these issues when he comes from a state which has experienced for so long a lack of appropriate attention to the mix of business and environment, community, industry, jobs, all of that sort of thing.

So I didn't interpret his message as directed at Mr. Schmertz as much as it is directed to a much larger audience from whence he comes and who, during the course of the debates we had in here on air toxins and some other things we are both familiar with, seems to be little hesitant to come forward and say that they want to cooperate fully and in filling the knowledge gaps that we all know exist in our dealing with these problems.

So I, too, hope that Mr. Schmertz doesn't take anything that the Senator from New Jersey said personally but that it is his tendency to sort of send back from where he came a larger message about how we would like to make public policy.

Senator LAUTENBERG. Thank you very much, Senator Durenberger you stated my message very clearly

Senator BAUCUS. I thank the Senators, and I want to thank everyone else. We have had a little bit of everything this morning.

Before I wrap it up, I am reminded of a poll I saw, I think it was 12 years ago. It listed the degree to which representatives of different fields are respected by the public, and of course, used car salesmen were down at the bottom and politicians were down at the bottom. I forgot what else was down at the bottom.

Guess who was at the top? Guess what group of people were most respected in America? This was 12 years ago. It was the sanitation engineers, our garbage collectors. It reflected, the only thought that occurred to me, is that people at least know whether their garbage is collected or not. It usually is. That must be the reason. What other reason, I couldn't ascertain.

Thank you very much.

[Whereupon, at 12:20 p.m., the subcommittee was recessed, subject to the call of the Chair.]

[Statements submitted for the record follow:]

Testimony of Eugene Salerni, Ph.D.
Research Coordinator for the
New York State Legislative Commission on
Solid Waste Management
before the Subcommittee on
Hazardous Wastes and Toxic Substances of the
Committee on Environment and Public Works, U.S. Senate
9:30 A.M. August 6, 1987
SD-406 Dirksen Senate Office Building
Washington, D.C.

Good Morning, ladies and gentlemen. My name is Eugene Salerni and I am the research coordinator for the New York State Legislative Commission on Solid Waste Management, which was established in 1984 to study our State's looming crisis in waste disposal.

I am grateful for this opportunity to testify about the solid waste problems that our nation and, as the now-famous garbage barge has shown, my State are experiencing.

While Mr. Nosenchuck will examine in detail how these problems affect New York State, I will tell you that our residents produce 18.4 million tons of municipal waste each year --- enough to cover a football field to a height of five miles...end zones included.

Over 80 percent of this waste goes into a dwindling supply of landfills, more than half of which are either confirmed or suspected of contaminating groundwater.

In response, the State has recently implemented an ambitious solid waste management plan. Our goal is to reduce and recycle half our waste by 1997, with most of the remaining waste going to resource recovery facilities and very little waste being sent directly to landfills.

Our State will be doing its best to meet these goals but I must tell you that it will not be easy and, frankly, there are many who tell us that it simply cannot be done. Well, I have been to Japan to study that nation's solid waste management practices and I can tell you that it is not impossible, but it will take an aggressive and integrated effort from federal, state and local governments to do it.

Japan is a nation with half the population of the United States living in a land area the size of California -- only one-fifth of which is habitable. They simply do not have the room to spare for landfills. Combined with Japan's heavy dependence on imported raw materials and concern over environmental pollution, this has resulted in a long history of sensible solid waste management. And they have been successful, to wit:

- Japan is recycling about one-half of its municipal waste;
- Japan has built almost 2,000 waste incinerators and resource recovery plants, and now burns two-thirds of the waste that remains after recycling;
- Only 10 percent of Japan's waste is sent to landfills unprocessed.

Japan is already meeting New York State's solid waste management goals and, in fact, buries a smaller volume of waste in its landfills each day than does New York -- despite having seven times its population.

The Japanese view solid waste as a major environmental threat. They began promoting waste reduction and incineration with their 1954 "Public Cleansing Law" and have reinforced it many times since. Each level of government has been given distinct obligations regarding waste disposal:

- Municipal governments have the responsibility to carry out waste disposal activities efficiently. This includes authority over the operation and environmental control of waste disposal facilities as well as requirements for record keeping and public education.
- Prefectural governments are required to provide municipalities with necessary assistance and oversight.

- The National Government is required to:
  - Establish standards to control emissions responsible for air, water and soil pollution and to take measures to ensure adequate enforcement.
  - Conduct research and promote the development of waste management technologies.
  - Give necessary technical and financial assistance to prefectures and municipalities.

The National Government meets its obligation in a variety of ways:

- Recycling is advanced through the financial support of groups such as the Clean Japan Center and the Plastic Waste Management Institute. These groups, along with government agencies, act as a clearinghouse for recycling information, assist in public education activities, have built a tire recycling plant and a battery recycling facility, and conduct recycling research.
- National emission standards specifically for municipal waste incineration plants have been in place since 1967. (Japan's prefectures and municipalities are empowered to set more stringent standards and often do.) All workers at incineration plants are required to undergo extensive training.
- The national government subsidizes up to 25 percent of the initial capital cost for solid waste incinerators and uses

this subsidy as an incentive to achieve maximum pollution control.

These actions have resulted in some of the most remarkable solid waste management practices in the world today. For example:

- Almost all Japanese citizens practice some form of waste separation. It is very common for waste to be sorted in the home into such categories as newspapers and magazines, glass bottles, metal cans, combustible waste, noncombustible waste, bulky waste, and hazardous waste.
- As a nation, the Japanese recycle 51 percent of their paper, over 70 percent of their aluminum and steel cans, and 50 percent of steel overall. Sixty-six percent of all bottles are re-used an average of three times, although some are used as many as 20 times, and 42 percent of new glass is made from cullet. As a nation, the overall recycling rate is estimated to be approximately 50 percent...even the Japanese don't know precisely what it is -- these materials are not counted as wastes -- they are resources.
- Local recycling programs are often subsidized by municipalities who realize that it is cheaper to do this than to dispose of waste in incinerators or landfills.
- To achieve citizen cooperation in recycling, there are extensive public education programs. School children are

taught waste hygiene curricula and in some communities, public officials travel door-to-door to teach residents how to separate their waste.

- Because of citizen concerns over mercury emissions, seventy-three percent of Japan's municipalities have instituted separation programs for manganese and alkaline-manganese batteries while battery manufacturers collect and recycle button-shaped mercury batteries nationwide in retail stores.
- Because of their recycling efforts, the average Japanese citizen generates only 2.2 pounds of waste needing disposal each day. This is in stark contrast to the 5.7 pounds that the average New Yorker generates each day.
- New Japanese waste-to-energy facilities are often community centers equipped with swimming pools, playing fields, tennis courts, and classrooms. This, along with commitments to emission levels far below what is required, helps ease public opposition to the siting of these plants.
- National technical standards for waste incinerators include a requirement for plants larger than 200 tonnes per day to generate no more than five percent ash.
- The Japanese are increasingly using such techniques as cementing and melting to stabilize incinerator ash before it is landfilled.

Japan's solid waste management system is probably the most advanced in the world today and offers many lessons for the United States. Unfortunately, in the time allowed, I can't adequately describe them all. I have provided, as part of my testimony, a report that I wrote to the New York State Legislature and I am working with a colleague on a comprehensive book on the subject. When it is published next month, I would be happy to provide it to this subcommittee.

To conclude, I would say that there are numerous measures that can and must be taken before we manage our solid waste in an environmentally sound manner. We need a national materials policy directed at resource conservation, waste reduction and recycling. The EPA has had the authority to pursue affirmative procurement for recycled paper, tire rubber asphalt and waste oil for over ten years but has failed to act. Action is also needed to reduce the proliferation of packaging and to improve the recyclability of the materials we use. The lack of EPA standards for key air pollutants undermines public confidence in waste incineration technology and there is also no clear, reasonable policy on residues from these plants.

The Japanese have shown us that there is a road out of our solid waste management dilemma. It is up to us to take it.

# TESTIMONY

Before

HAZARDOUS WASTE AND TOXIC SUBSTANCES SUBCOMMITTEE

COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

UNITED STATES SENATE

Barry Commoner

August 6, 1987

**CBNS**

**CENTER FOR THE BIOLOGY OF NATURAL SYSTEMS**
**QUEENS COLLEGE, CUNY FLUSHING, NEW YORK**

This is a crucial time to reconsider the national policy on the management of municipal solid waste (MSW). For a long time MSW has been the "orphan pollutant," receiving far less attention than air or water pollution or toxic chemicals. Basic research on MSW lags far behind research on air and water pollution, or toxic chemicals; relatively little has been done to develop and evaluate alternative MSW disposal technologies. MSW has been low in the agendas of federal agencies; only a few years ago, EPA declared after a superficial study of five MSW-burning incinerators that they do not constitute an environmental problem and that no further studies are needed.

Now at least the perceptions of the problem have changed. It is now generally recognized that the country faces an MSW crisis. About 90% of the nation's MSW is now consigned to landfills. But it is evident that this practice cannot continue for very long; many landfills leach toxic materials into the underlying ground water; some pollute the air with volatile toxic materials; all of them are filling up and, in many parts of the country, we are simply running out of room for new ones.

There is no question that an alternative to the present means of disposing of MSW must be found. The prevalent response is to adopt, as the "only alternative" to landfills, incinerators ("resource recovery plants") that burn unseparated MSW or a refuse-derived fuel prepared from MSW. However, this response fails to take into account two important facts: (a) There are serious technological, health, and financial risks associated with MSW incinerators; (b) Incinerators are not the only alternative to landfills; recycling is environmentally superior to incinerators and probably less costly.

MSW incinerators are not a "proven technology":

Incinerators are by no means a "proven technology" with respect to toxic emissions. MSW incinerators were designed on the theory that a high furnace temperature and combustion efficiency would destroy toxic materials in the MSW and thereby prevent hazardous emissions. Actual tests of operating incinerators show that despite this theoretical expectation, in practice all MSW incinerators emit a variety of organic compounds, of which "dioxin" (the common term used to designate the family of 210 polychlorinated dibenzo-p-dioxins and polychlorinated dibenzofurans) is the most hazardous. Incinerators also emit toxic metals. As shown in a recent Center for the Biology of Natural Systems (CBNS) study (Commoner, 1986a), the test data indicate that, contrary to expectations, incinerator dioxin emissions are not reduced by high furnace temperature or combustion efficiency. Moreover, emissions of toxic metals are increased by high furnace temperature. The test data also show that no control device -- electrostatic precipitator, auxiliary burner, or a scrubber/baghouse system -- is capable of totally eliminating dioxin emissions.

The origin of dioxin in incinerators:

Because the actual test data on incinerator emissions contradict the expectations from the conventional theory of incinerator operation (i.e., that hazardous emissions of organic compounds such as dioxin can be prevented by effectively destroying them in the furnace), we at CBNS have reexamined the evidence and, from it, have developed a new theory. The CBNS analysis concluded that the emissions are a consequence of the actual synthesis of dioxin in the incinerator system. In this process, derivatives of lignin (a common constituent of wood and paper) combine with chlorine from chlorinated plastics such as polyvinyl chloride, through chemical reactions that take place on the surface of fly ash particles, to form dioxin. Since these reactions take place in the cooler parts of the incinerator system (the heat exchanger, emission control device and the stack), dioxin emissions are not affected by the destructive influence of the high temperatures that occur in the incinerator furnace. The CBNS theory is shown in diagrammatic form in Figure 1.

The CBNS theory on dioxin synthesis has now been confirmed by two recent tests. In a test of an incinerator at Prince Edward Island, Canada (Environment Canada, 1985), it was found that although almost no dioxin left the incinerator furnace, considerable amounts occurred at the base of the stack. (See Figure 2) This confirms that dioxins are literally synthesized in the incinerator system after the flue gas leaves the furnace, and that the process occurs at temperatures (180-800°C), consistent with the CBNS theory. A recent laboratory test in West Germany (Vogg & Stieglitz, 1985) has also confirmed that dioxin synthesis occurs on the surface of fly ash at the predicted low temperatures. Fly ash taken from an incinerator precipitator was treated at temperatures between 120-600°C. Very large amounts of dioxin were produced, especially at temperatures of 250-350°C, thus again confirming the CBNS theory. In sum, MSW incinerators must be regarded as dioxin factories.

This conclusion has important implications for the effort to control PCDD/PCDF emissions. First, it calls into question the approach, often taken in regulatory proposals, which cites high furnace temperature and combustion efficiency as a means of reducing PCDD/PCDF emissions. Second, this conclusion conditions the strategy of reducing emissions by trapping them in a control device. The CBNS theory suggests that a primary requirement for such a device is that it must be located at a position downstream from the zone of synthesis. In practice, this means that the gas stream must be cooled to the temperature range which enhances PCDD/PCDF synthesis (200-300°C) before it enters the control device. To my knowledge this relationship has not been employed in the design of any existing MSW incinerator. It is possible that the observation of relatively low PCDD/PCDF emissions from certain incinerators may result from the fortuitous occurrence of the proper relationship between the zone of synthesis and the location of the control device. In this connection it is significant to note that the apparent success of a Quebec pilot plant in controlling PCDD/PCDF emissions depends on cooling the gas in a scrubber before it enters the baghouse (Hay *et al.*, 1986)

While the CBNS theory may lead to improved incinerator control systems by specifying the relation between flue gas temperature and the control device, it has not yet been applied to a full-scale system. It should be noted that the Quebec experiment was conducted on a flue gas stream representing the

Figure 1

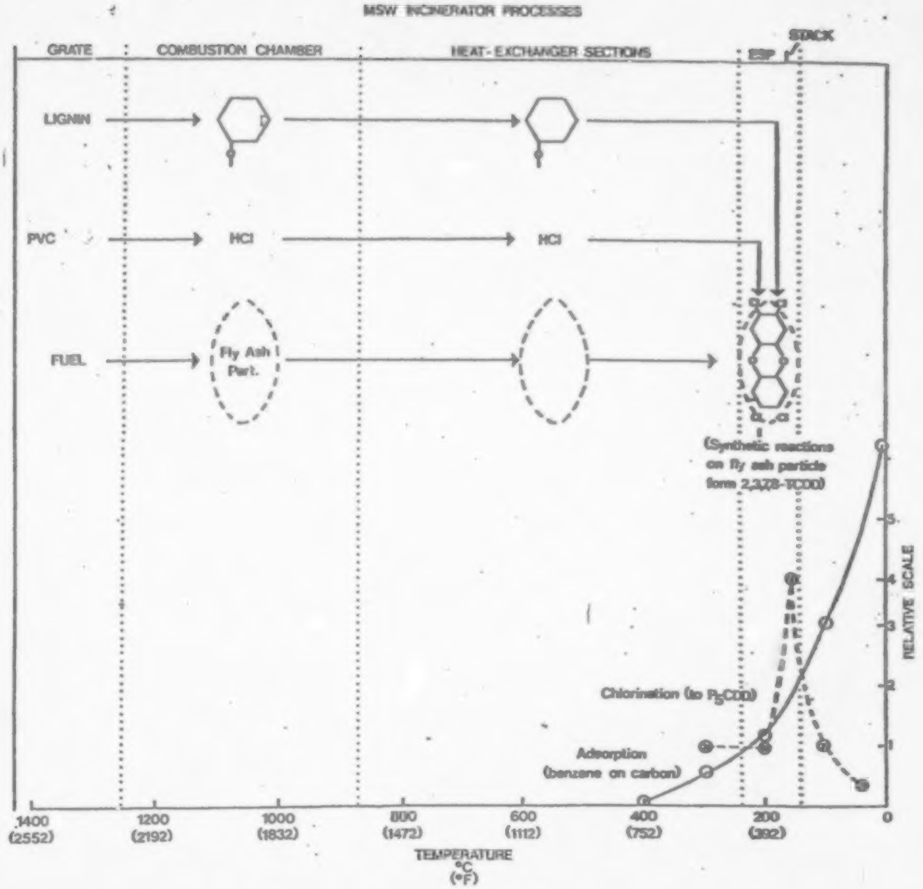
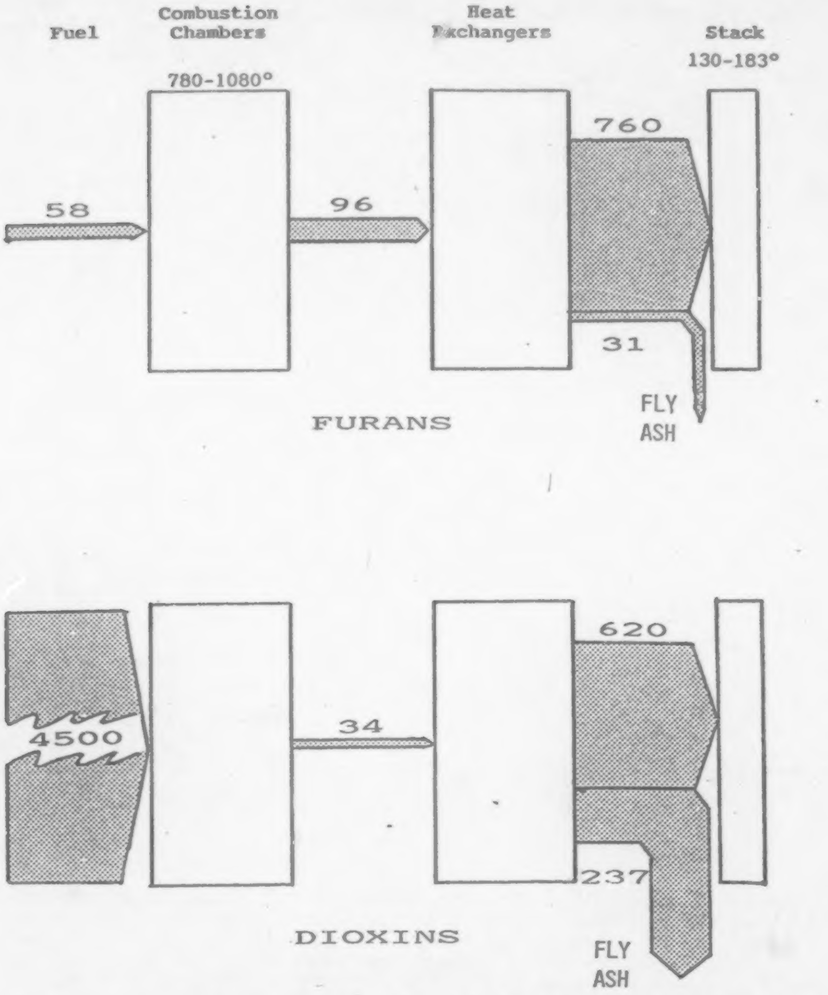


Diagram to illustrate the CBNS hypothesis on the synthesis of PCDD/PCDF in incinerator systems. The chlorination curve is based on data from Eiceman and Rghei (1982). The adsorption curve is intended to illustrate the temperature-dependency of adsorption processes. The 2,3,7,8-TCDD isomer is shown only as an example of the varied PCDD and PCDF isomers that could be produced in the same way.

Figure 2

MASS BALANCE: PEI INCINERATOR
(μg per hour)



Diagrammatic presentation of mass balance from the test of the Prince Edward Island incinerator described in Environment Canada (1985). The data confirm that PCDD and PCDF are synthesized between the point of entry of the flue gas into the heat exchanger and the stack.

combustion of only 20 tpd of MSW. Serious scale-up problems remain to be solved before this success can be regarded as indicative of comparable results in a full-scale incinerator. Once again, this is evidence that the MSW incinerator cannot be regarded at this time as a "proven technology," suitable for adoption by a community that wishes to avoid the risks of experimenting with such a costly investment.

It is now apparent, therefore, that there is no basis, either in practice or in theory, for the industry view that dioxin emissions can be controlled by proper furnace conditions. This means that if an incinerator based on present designs is built, it will be impossible to predict how much dioxin will be emitted or what could be done to reduce the emissions. Building such an incinerator therefore involves a serious technological risk. Moreover, the new control systems, such as that developed in the Quebec tests, do not solve the dioxin problem, but only shift it from one part of the environment to another. Now that it is evident that dioxin is literally synthesized in the MSW incinerator, the strategy of control has shifted from the (failed) effort to destroy it in the furnace to an effort to capture it before it leaves the plant stack. This means that the less dioxin is emitted from the stack, the more occurs in the fly ash that is trapped in the control device. Fly ash from MSW incinerators is so heavily contaminated with dioxin and toxic metals that it must be classified as a hazardous substance and disposed of in a hazardous waste landfill. Since both dioxin and toxic metals are exceedingly stable, even such a "disposal" practice still leaves us with the risk that these materials will eventually be carried into the environment and into the human body.

The health effects of incinerator dioxin emissions:

Until now it has appeared that the most serious health effect due to dioxin emissions from incinerators is the risk of an increased incidence of cancer. However, an article in the Apr. 18, 1986 issue of the Journal of the American Medical Association indicates that there is also a risk of suppression of the immune system -- the system that protects the body from a variety of diseases, including cancer. It was found that people exposed to dioxin-contaminated soil in Missouri exhibited a significant reduction in their cellular immune system. It will be important to assess this risk from incinerator dioxin emissions as well.

At present, incinerator risk assessments relate only to dioxin and toxic metals in the emissions, based on their effect on cancer incidence. Recently a relatively consistent picture of the dioxin-induced cancer risk from MSW incinerators -- earlier, a subject of a good deal of disagreement -- has begun to emerge. As shown in Table I, risk assessments made by various state agencies and consulting firms, as well as by CBNS, now agree that the maximum lifetime cancer risk from MSW incinerators is 1-160 per million even if the assumed dioxin emissions are at the low rate measured from an operating incinerator (the Chicago NW plant). Also shown in Table I are the cancer risks determined from tests of two operating incinerators in New York State. The cancer risks determined by the New York State Department of Health are 1-2 per million for the Peekskill incinerator and 11-20 per million for the Niagara Falls incinerator. However, when the risk computation is corrected for inaccuracies in the estimates of dioxin dosage of the exposed population, the cancer risks due to the emissions from these incinerators are 17 and 270 per million, respectively.

The significance of such risks has become clearer as a result of recent governmental decisions. Of particular importance is the recent EPA Report to Congress, "Municipal Waste Combustion Study." This report concludes that, largely due to their dioxin content, the emissions from MSW-burning incinerators represent a significant hazard to public health and provide the basis for invoking Section 111 of the Clean Air Act. According to the Report, existing incinerators are responsible for a national cancer incidence of 2-40 per year. However, this estimate takes into account only the effect of dioxin that enters the body by means of inhalation of contaminated dust particles. However, two other routes of entry are also important: ingestion of deposited dioxin-contaminated dust (for example, by children), and the intake of dioxin-contaminated food. When the EPA estimates are corrected for these effects, the annual national cancer incidence due to incinerator emissions rises to 12-240. (See Table II) The EPA Report also estimates the maximum lifetime cancer risk due to incinerator emissions at 100-1000 per million; corrected for the additional routes of entry, this risk becomes 600-6000 per million.

How can we interpret these results? There is, of course, no "objective" scientific basis for deciding that a particular number of cases of cancer, or a particular cancer risk, is acceptable. This is a social judgment that will reflect a number of competing

## Table I

## INCINERATOR CANCER RISK ASSESSMENTS
(Additional Cases per Million People Exposed to
Maximum PCDD/PCDF Concentration Over 70-Year Lifetime)

| Location | Author | Risk Assessment |
|---|---|---|
| | PROPOSED INCINERATORS* | |
| Brooklyn, NY | Hart | 5.9 |
| Brooklyn, NY | CBNS | 29 |
| Newark, NJ | Camp et al. | 1 |
| San Diego, CA | HDR | 10 |
| Rutland, VT | Dept. of Health | 12-29 |
| Detroit, MI | Dept. of Natural Resources | 2-31 |
| Detroit, MI | CBNS | 160 |
| Los Angeles, CA | CBNS | 22 |
| Palm Beach, FL | CBNS | 10 |
| Minneapolis, MN | CBNS | 9 |
| | OPERATING INCINERATORS | |
| Niagara Falls, NY | Dept. of Health | 11-20 |
| Niagara Falls, NY | CBNS | 270 |
| Peekskill, NY | Dept. of Health | 1-2 |
| Peekskill, NY | CBNS | 17 |

*These risk assessments are based on an assumed PCDD/PCDF stack concentration equivalent to that measured at the Chicago NW incinerator, which is the lowest value recorded for a large-scale incinerator. The computed risk assessments are therefore minimum values.

## Table II

## U.S. EPA CANCER RISK ASSESSMENTS

| | Maximum Lifetime Cancer Risk (per million) | Annual Cancer Incidence | |
|---|---|---|---|
| | AIRBORNE CARCINOGENS | | EPA ACTION |
| Benzene | 154 | 245 | Regulatory standard established (6/6/84) |
| Carbon Tetrachloride | 15 | 46 | Intend to List (US EPA, 8/13/85) |
| Chloroform | 77 | 17 | Intend to List (US EPA, 9/27/85) |
| Ethylene Dichloride | 18 | 43 | Intend to List (US EPA, 10/16/85) |
| Formaldehyde | 206 | 199 | Under extended assessment |
| Methyl Chloride | 0.46 | 2.4 | No information |
| Methylene Chloride | 0.83 | 2.4 | Listed (US EPA, 10/17/85) |
| Perchloro Ethylene | 18.8 | 24 | Intend to List (US EPA, 12/28/85) |
| Trichloroethylene | 25.9 | 19 | Intend to List (date NA) |
| Vinyledene Chloride | 830 | .07 | No regulatory action (US EPA, 8/13/85) |
| Exposure | EXISTING INCINERATORS | | Reference |
| Inhalation only | 100-1000 | 2-40 | EPA Study (1987), Table 5-6 |
| Inhalation + Ingestion/dermal | 500-5000 | 10-200 | Hart (1984) (ingestion/ dermal = 5.1 x inhalation) |
| Inhalation + Ingestion/dermal + Indirect | 600-6000 | 12-240 | EPA Study (1987), p. 94 (indirect "comparable" to inhalation) |

considerations. EPA has been required, under the provisions of Section 112 of the Clean Air Act and Section 4(f) of the Toxic Substances Control Act to make such judgments in the case of airborne carcinogens. EPA uses both the maximum lifetime risk and the national cancer incidence to determine whether or not to begin regulatory proceedings against airborne carcinogens. As shown in Table II, EPA has begun proceedings for a carcinogen (methylene chloride) with a maximum lifetime cancer risk as low as 0.83 per million. In comparison, the risk estimates in the recent EPA Report, as well as the risk assessments for existing and proposed incinerators shown in Table I, are in excess of this value, some of them considerably so. Table II also shows that the national annual cancer incidence attributable to existing incinerators is well in excess of values that have triggered EPA regulation of airborne carcinogens, even if the low estimate in the Report (2-40) is used.

The foregoing comparison indicates that dioxin emissions from trash-burning incinerators ought to be subject to EPA regulation -- if EPA is to be consistent in its regulatory practice. The EPA decision to invoke Section 111 of the Clean Air Act instead of Section 112 fails to meet this obligation, for Section 111 calls only for "best available technology" and, unlike Section 112, does not lead to emission standards or standards of ambient exposure.

## MSW incinerators have already exposed the U.S. population to unacceptable levels of dioxin:

A second way of assessing the significance of the incinerator cancer risk assessment relative to national regulatory practice can be derived from recent data on the amount of dioxin which the general U.S. population has absorbed from past environmental exposure. Dioxin taken up from the environment tends to deposit in adipose tissue, and recent analyses of samples from an EPA survey (of 900 people representative of the general U.S. population) show that dioxins and furans are universally present in the population (Stanley, et al, 1985). This appears to be equally true of populations in Canada, Sweden and West Germany. A CBNS study (Commoner et al., 1986b) of these data shows that the chronic dose that gives rise to the average amount of dioxins and furans in the adipose tissue samples is sufficient to induce a national average cancer incidence of 330-1400 per million people exposed over a 70-year lifetime. Dioxin is present in the fat of mother's milk as well, at about the level found in adipose tissue fat. As a result, breast-fed infants will take up enough dioxin in only one year to induce a lifetime risk of 23-64 cases of cancer per million.

It is of interest to compare these results with the annual cancer incidence due to emissions from existing incinerators, as estimated in the recent EPA Report. As pointed out earlier, this figure, corrected for the additional routes of exposure, is an annual national cancer incidence of 12-240. If the lower value that we have computed from the EPA adipose-tissue data -- 330 per million for a 70-year lifetime exposure -- is recomputed in terms of the national annual incidence (using the same computational assumptions of the EPA Report) the value is 226 -- quite close to the upper bound of the EPA estimate. This comparison suggests that the general occurrence of dioxin in the U.S. environment --

as evidenced by the resulting levels in the adipose tissue of the general population -- is largely due to the emissions from MSW-burning incinerators.

It is evident, I believe, that the present exposure of the U.S. population to dioxin represents a cancer risk that, on the basis of current regulatory practice, must be regarded as unacceptable. Clearly the present environmental levels of dioxin must be reduced, and since they are largely due to trash-burning incinerators, I conclude that incinerators are an unacceptable means of MSW disposal.

Recycling: the preferred alternative:

It is common experience among communities that must replace the landfill that now receives their MSW to be told that a mass-burn incinerator is the only alternative. Despite the frequency with which one hears this statement, it is in fact not true. Perhaps the most unfortunate aspect of this conventional approach to the MSW problem is that it gives rise to the false impression that the problem can be solved by deciding to build a single piece of equipment. In fact, we are dealing with a systems problem, and an optimum solution depends on designing an appropriate waste-handling system rather than installing a specific facility.

In designing an effective MSW system -- that is, a system that minimizes cost and environmental impact -- it is essential to consider the interactions among a considerable array of factors. Some of them are: the sources of MSW; its composition; the technologies used to convert MSW to energy or to separate recyclable materials; household separation; efforts (such as bottle bills) to reduce the amount of MSW; the size and location of MSW facilities; the markets for recovered energy or material; capital and operating costs of alternative facilities; methods of financing facilities; the distribution of costs between private operators and the public agency; the environmental impacts of alternative systems. Unless the different elements of the system are integrated into a harmonious whole, it is impossible to minimize costs and environmental impact.

There are several basic criteria which such an integrated system should meet: It should dispose of as much of the MSW as possible in order to minimize landfill requirements; it should minimize the net cost of disposal; it should minimize environmental impacts. There are two existing methods of disposal which can meet the first criterion. Incineration destroys about 70% (by weight) of the MSW, the residue going to landfill; the resource which is recovered and reduces the net disposal cost is energy. The alternative method is to separate MSW into recyclable components; since about 80% (by weight) of MSW components are capable of being recycled (in the form of separated paper, glass and metal, and compost), this method is potentially capable of matching the incinerator in net disposal; the resources which are recovered and sold are materials rather than energy.

These considerations suggest an overall strategy for devising a separation/recycling system which is comparable to a mass-burn incinerator in its trash-handling capability -- i.e., that about 70% of the trash is disposed of by recycling with 30% or less going to landfill. Accomplishing this purpose calls for a separation strategy which at the household level: (a) effectively isolates non-recyclable trash components from the recyclable ones; (b) segregates recyclable components into groups that can be further separated by relatively simple mechanical means into marketable products; (c) combines (a) and (b) into a regularly scheduled collection program and provides a suitable collection system for "irregular" trash components. In what follows I discuss the basic conditions which govern the realization of this strategy and describe the components of a separation/recycling system capable of accomplishing the strategic aims. CBNS is now testing this system in the Town of East Hampton, Long Island, in collaboration with the Town, and with the support of the New York State Energy Research & Development Authority. We also plan to test its feasibility for the City of Buffalo, N.Y., under a contract from the Common Council of Buffalo.

Strategic requirements for intensive recycling:

1. Continuous operation:

Trash has two fundamental properties which must govern the design of any process designed to deal with it: It is produced continuously, and its food garbage component putrefies in a relatively short time. This means that any system that deals with trash *must* operate continuously, with storage facilities suitably sized relative to the frequency of transport. The food garbage component or any material contaminated with it can be stored only briefly before being rendered non-putrescible, for example by being converted into compost.

2. Completeness of separation:

The ease with which material separated from the overall trash mixture can be disposed of depends considerably on the homogeneity of the separated constituents. For example, a separated component that consists of only clean paper can be readily sold in the paper market. However, if it is mixed with only a small amount of food garbage, which will putrefy in storage, the paper may be unsalable. It is therefore particularly important to segregate food garbage and other putrescible material such as discarded disposable diapers from the other trash components.

3. Minimization of residues:

Ideally all of the material in the trash should be disposed of by being shipped away from the community in some usable form. Any unusable residue remains as a burden to the community, which can only be disposed of in a landfill. Although this ideal is impossible to achieve, the separation system should be sufficiently complete to keep the unusable residue -- and therefore the required landfill capacity -- to an absolute minimum. Moreover, such a residue should be environmentally benign, which in practice means that it should not contain toxic materials. As already noted, if a separation system is to be comparable to an incinerator in its overall trash-handling capability, it should aim at recycling 70% or more of the total trash stream.

4. Reasonable cost:

The actual cost of a trash-handling system must be estimated for each specific design and location, which is beyond the scope of the present analysis. However, it appears that a system involving processes such as household separation and partial mechanical separation will be no more costly than incineration, and probably less so (EDF, 1985).

Design of an intensive separation/recycling system:

The following factors comprise the CBNS intensive recycling system.

1. Household Separation:

The fundamental strategy for designing the system is suggested by the basic conditions discussed above and by the available off-the-shelf processes. This information leads to the following considerations:

a. The chief obstacle to continuous operation of a separation system is the relative instability of the markets for recycled material. Typically, such materials -- for example, scrap metal or newspapers -- are at the "bottom of the market"; that is, they receive the lowest price for metal or paper. This is particularly true if the recycled material is contaminated with other trash components. Critics of recycling sometimes claim that if the overall demand for metal or paper drops, as it will in a slack economy, there may be no market for the scrap material and it will simply pile up. The EPA (1979b) survey provides actual data on this question, for it determined the effect of the economic recession of 1974-76 on the price and marketability of recycled material. In that period the price received by communities for recycled newsprint dropped from about $35 per ton to about $5 per ton. Nevertheless, only 19% of the communities surveyed reported that they were unable to market their recycled materials. Moreover, those communities that had long-term contracts with buyers were able to maintain the price at about $20 per ton. It would appear, therefore, that a sharp decline in demand will increase the net cost of recycling but not necessarily bring it to a halt.

These considerations establish an initial requirement for the system: that it must be based on separation processes and equipment which operate continuously under firm contracts for disposing of the recycled products.

b. Three facilities are available off-the-shelf which -- if provided with suitable inputs -- are capable of recycling and disposing of separated trash components on a continuous basis:

i) a compost facility, which receives food garbage, yard waste and brush, and sewage sludge, and yields a product which can be disposed of as a soil additive on agricultural or other land;

ii) a can and bottle processing facility, which separates this mixed input by mechanical means and hand-picking to yield products -- crushed glass, tin cans and aluminum cans -- which can be sold continuously into commercial markets;

iii) a paper processing facility, which receives mixed paper and uses mechanical means and handpicking to produce baled newsprint, cardboard and mixed paper, which can be sold into commercial markets on a continuous basis.

Consideration should also be given to a salvaging operation and recycling center such as described above.

It follows, therefore, that the separation/recycling system should be designed to include the three major facilities and to provide them with suitable inputs -- that is, material sufficiently homogeneous to yield products that are salable and hence readily disposed of.

c. The foregoing requirement can be met only if the separated products are relatively homogeneous and free of contaminating material which would lead to their rejection as salable commodities. Based on what is known about the operation of the three facilities, the following requirements can be specified:

i) The compost product must be sufficiently free of toxic substances (e.g., toxic metals such as lead or mercury) and of extraneous matter (such as scraps of glass and plastic) to be usable as a soil additive on crop land.

ii) The products yielded by the can and bottle and paper facilities must be free of significant contamination from plastic material, scrap metal and food garbage, which if present may seriously hinder the separation process and the salability of the products.

These considerations lead to a third strategic conclusion: that the input to the compost facility -- garbage and other putrescible materials -- should be isolated from all the other trash components; and that the inputs to the can and bottle facility and the paper facility should be kept free of not only food garbage but also non-recyclable trash components such as plastic.

d. The foregoing requirements can be met if households are required to deposit trash into four separate containers for regular curbside collection, as follows:

Container I: Food garbage and other putrescible material such as disposable diapers, together with discarded tissue, food-soiled paper.

Container II: Newspaper and other forms of clean paper and cardboard, including food cartons free of contamination.

Container III: Metal cans and glass bottles and jars, rinsed by the householder before disposal.

Container IV: All the rest of the regular trash, including discarded plastic, metal and ceramic kitchenware, textile, small rubber items.

e. The material collected in Container IV -- plastic packaging and other plastic discards (including plastic bottles), discarded textile items, rubber, discarded ceramic and metal kitchenware -- represents the most intractable problem in a separation system. With some difficulty it may be possible to separate certain plastic items from this group and recycle them, but this cannot be relied on at present. It follows, therefore, that this non-recyclable material must be consigned to a landfill. As indicated in Table III, it represents about 12% of the total trash.

f. Trash items that are not generated on a regular daily basis include yard waste and brush, and wood; discarded furniture and clothing; "white goods" (i.e., refrigerators and other heavy appliances). These require separate collection systems. Yard waste can be collected with food garbage, in Container I, if the amount is not too large. In the summer months, larger amounts can be collected separately, delivered to the compost operation and incorporated in the starting material.

## Table III

### COMPOSITION OF TRASH AND DISTRIBUTION INTO SEPARATE HOUSEHOLD CONTAINERS

| Component | Trash Composition (% of Total Trash) | | | Content of Household Containers (% of Total Trash) | | | |
|---|---|---|---|---|---|---|---|
| | Total Trash | Recyclable | Non-Recyclable | (I) Food Garbage & Yard Waste | (II) Paper | (III) Bottles & Cans | (IV) "All the Rest" |
| PAPER | | | | | | | |
| Newsprint | 15.4 | 15.4 | | 0 | 15.4 | 0 | 0 |
| Magazines | 2.6 | 2.6 | | 0 | 2.6 | 0 | 0 |
| Corrugated | 1.5 | 1.5 | | 0 | 1.5 | 0 | 0 |
| Brown paper | 8.3 | 8.3 | | 0 | 8.3 | 0 | 0 |
| Mail | 4.1 | 4.1 | | 0 | 4.1 | 0 | 0 |
| Food cartons | 3.1 | 3.1 | | 0 | 3.1 | 0 | 0 |
| Tissue | 3.0 | 3.0 | | 3.0 | 0 | 0 | 0 |
| Wax cartons | 0.4 | | 0.4 | 0 | 0 | 0 | 0.4 |
| Plastic-coated | 1.1 | | 1.1 | 0 | 0 | 0 | 1.1 |
| | 39.5 | | | | | | |
| METALS | | | | | | | |
| Ferrous bev. cont. | 1.2 | 1.2 | | 0 | 0 | 1.2 | 0 |
| Other ferrous | 6.4 | 6.4 | | 0 | 0 | 6.4 | 0 |
| Non-ferrous bev. | 0.4 | 0.4 | | 0 | 0 | 0.4 | 0 |
| Other non-ferrous | 0.7 | 0.7 | | 0 | 0 | 0.7 | 0 |
| | 8.7 | | | | | | |
| GLASS | | | | | | | |
| Beverage cont. | 5.0 | 5.0 | | 0 | 0 | 5.0 | 0 |
| Other glass | 4.7 | 4.7 | | 0 | 0 | 4.7 | 0 |
| | 9.7 | | | | | | |
| PLASTIC | 4.7 | | 4.7 | 0 | 0 | 0 | 4.7 |
| RUBBER & LEATHER | 2.0 | | 2.0 | 0 | 0 | 0 | 2.0 |
| TEXTILES | 2.0 | | 2.0 | 0 | 0 | 0 | 2.0 |
| FOOD GARBAGE | 11.4 | 11.4 | | 11.4 | 0 | 0 | 0 |
| WOOD | 4.0 | 4.0 | | 4.0 | 0 | 0 | 0 |
| YARD WASTE | 16.0 | 16.0 | | 16.0 | 0 | 0 | 0 |
| MISCELLANEOUS | 2.0 | | 2.0 | 0 | 0 | 0 | 2.0 |
| TOTALS | 100.0 | 87.8 | 12.2 | 34.4 | 35.0 | 18.4 | 12.2 |

Sources:
1. For percent total trash: Holzmacher, McLendon & Murrell, P.C., 1986.
2. For percent waste of subcomponents except brown paper, mail, cartons, tissue, wax cartons, and plastic-coated paper: US EPA, 1979b.
3. For percent waste of brown paper, mail, cartons, tissue, wax cartons, plastic-coated paper: EG&G, 1982.

Discarded furniture and large household appliances could be collected periodically (perhaps quarterly) or brought to collection stations.

g. A final conclusion follows from these considerations: that separate collection systems must be established to ensure that toxic materials do not enter the regular collection system.

2. Disposal:

a. Regular trash components:

The material in the four containers should be collected and disposed of as follows, on a suitable, regular schedule:

Container I (Food garbage and other putrescible material, yard waste):

Delivered to the compost plant, where together with brush and additional yard waste from special collections, and sewage sludge it is processed to yield compost.

Container II (Clean mixed paper):

Delivered to a contractor's paper-sorting operation for separation into suitable salable products which are shipped to market.

Container III (Cans and bottles):

Delivered to a contractor's sorting and glass-crushing operation for separation into suitable salable products which are shipped to market.

Container IV ("Everything else," i.e., plastic, textile, rubber, small metal items):

Delivered to the landfill site for possible sorting and separation of recyclable items. Nearly all of this trash stream is likely to be unrecyclable material which is consigned to the landfill.

Thus, all of the four separate trash streams defined above would be removed continuously: compost to agricultural acreage, parks and waste land; separated paper components, as guaranteed by the contractor, into the scrap paper market; separated cans and bottles, as guaranteed by the contractor, into scrap steel, glass recycling markets; "everything else," less recycled items, to the landfill. The overall structure of the system defined above is shown in Figure 3.

b. Irregular trash components and hazardous materials:

Bulky items, collected by occasional or special pickups, would be delivered to a sorting and resale operation (operated by a community group or perhaps privately), with residual material periodically consigned to the landfill.

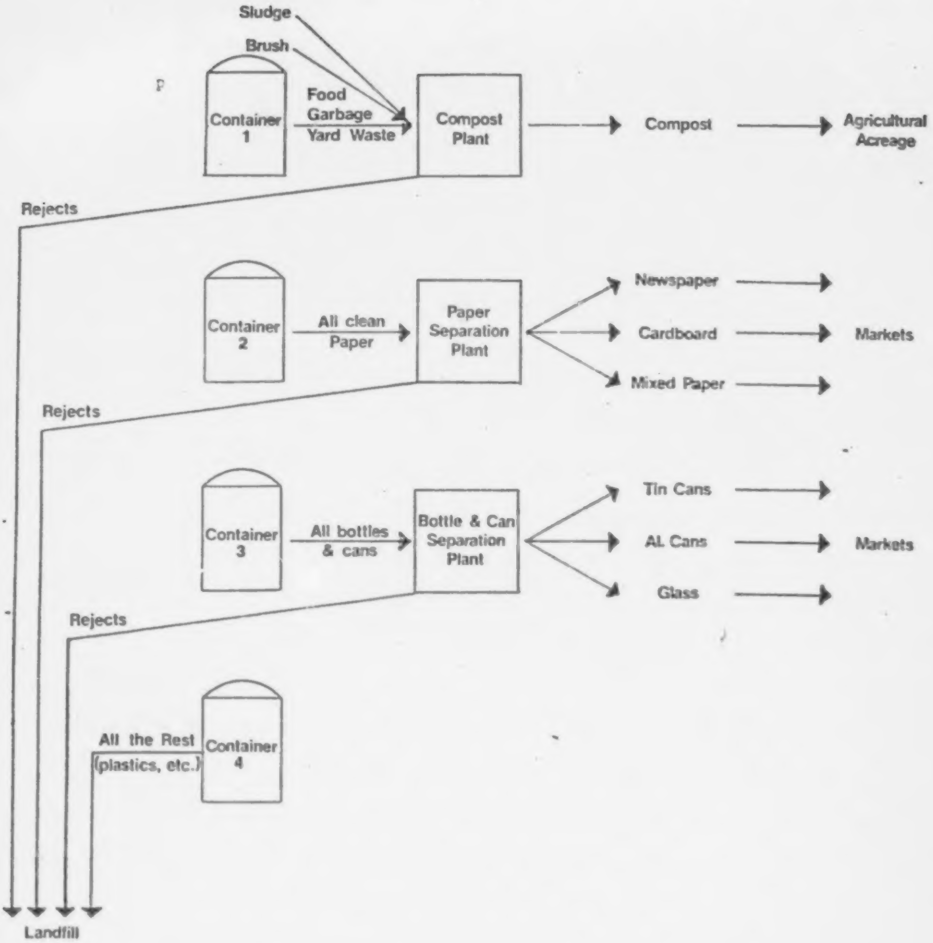
Hazardous materials would be collected and disposed of by a separately established system.

The conflict between incineration and intensive recycling:

Proponents of an incinerator often propose to operate it in conjunction with recycling. Typically they insist that no more than 15-20% of the MSW could be recycled, apparently based on the claim that only a small percentage of the population would be willing to source-separate their trash. In fact, there is a sharp conflict between incineration and recycling. The economic viability of an incinerator depends on burning enough trash of sufficient energy content to yield the expected amount of steam or electricity for sale. If the incinerator operates below capacity,

Figure 3

BASIC SEPARATION SCHEME



the return on its huge capital cost is reduced and tipping fees will rise. Moreover, if paper, which provides most of the energy that the incinerator hopes to derive from MSW, is removed by recycling, the remaining material may be incapable of being burned without additional fuel. Thus, recycling diverts MSW from the incinerator, reducing its heat output and income.

As a result, most incinerator contracts involve "flow control," which gives the incinerator operator the exclusive right to _all_ the MSW produced in a given area. It is not surprising, therefore, that "flow control" has been used to _prevent_ recycling. For example, in Akron, Ohio a recycling facility was forced to shut down because it violated the flow control provision that supported a local incinerator.

In sum, despite the incinerator industry's claims, there is in fact a conflict between recycling and incineration. In contrast, if a system is based on separation and recovery of material rather than energy, there is a harmonious relation between household and curbside separation on the one hand and mechanical separation on the other. Any material that is removed from the trash stream by previous household or curbside separation only simplifies the subsequent mechanical separation, yielding cleaner, more salable separated components. The cost of the overall operation is determined by the total sale of separated materials and is not affected by the balance between household/ curbside separation and mechanical separation. Moreover, since mechanical separation plants can be built economically on a much smaller scale than incinerators, the capital investment in the separation plant can be efficiently matched to the expected residue from household and curbside separation.

It is important to note that neither an incinerator nor a separation/recycling system will completely eliminate the need for landfills. Incinerators produce a residue of bottom ash and fly ash that amounts to about 15-20% of the original weight of the MSW, which must go to a landfill. However, the fly ash has high concentrations of dioxin and therefore must be treated as a hazardous substance. This means that the incinerator fly ash must go into a special Class I landfill qualified to receive hazardous waste. This adds to the cost and health risk of operating the incinerator. A separation system will inevitably yield a certain amount of plastic that cannot be recycled and is best disposed of in a standard landfill. Plastic represents about 5-8% of the total MSW weight. The landfill burden from a separation system will be considerably smaller and less hazardous than that from an incinerator.

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# Testimony

of

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Director, Solid Waste Programs
National Solid Wastes Management Association

before

Senate Environment and Public Works Committee
Subcommittee on Hazardous Waste and
Toxic Substances

August 6, 1987

I am here today to offer testimony on behalf of the National Solid Wastes Management Association (NSWMA).

NSWMA is the trade association for the private sector segment of the waste management industry. NSWMA's 2,700 members encompass the entire spectrum of waste services, ranging from refuse collectors to landfill managers, resource recovery plant operators, commercial hazardous waste managers and transporters, recyclers, and environmental engineers. Private sector firms collect 60% of the residential refuse generated in the United States and over 90% of the commercial waste. The private sector owns and operates approximately 17% of the country's landfills.

The Association welcomes the opportunity afforded by this hearing to comment on the proper disposal of municipal solid waste, as critical an environmental, social, and economic issue as any confronting American society today.

## Overview of Solid Waste Disposal Crisis

Municipal solid waste is the solid refuse generated by residential sources and the non-hazardous solid refuse from industrial and commercial sources. On the average, each person in the United States is directly responsible for the generation of one ton of municipal solid waste each year, and this generation rate appears to be increasing gradually. The concern raised by its disposal is how to provide this essential public service while at the same time assure that environmental and human health concerns are being responsibly addressed.

Nationally there is no solid waste disposal crisis in this country. In the aggregate, we have both the land area and the technology to manage municipal solid waste in an environmentally sound way. However, waste management is a critical and contentious issue for certain individual communities, regional geographic areas, and, sometimes, entire states.

The most tangible aspect of the problem is diminishing landfill capacity. If the useful life of a community's landfill is fewer than five years and the community has not approved an adequate alternative to replace it, that community is facing a crisis. For example, in Connecticut only two new municipal waste landfills have been permitted since 1978. Currently, 50 percent of the state's solid waste is going to nine major landfills which will all reach their permitted capacity at the same time in the next few years.

In New Jersey, five counties are sending most or all of their waste to landfills in Pennsylvania. In 1970, New Jersey had approximately 370 operating landfills. Currently fewer than 8 of the state's facilities accept more than 90 percent of New Jersey's municipal solid waste.

Last year, in New York, the State Legislative Commission on Solid Waste reported that existing landfills in the state had only nine years' capacity remaining. Since that report, at least 18 additional landfills have closed, representing four percent of the state's capacity. Not one new landfill has opened. Of the 278 municipal waste landfills operating in the state, only ten can be considered state of the art in terms of design and operation.

## The Nature of the Crisis

If the public is not yet alarmed about diminishing disposal capacity, the likely cause is lack of information and understanding about the problem. The public cannot be expected to feel any sense of urgency about solid waste disposal when trash is removed from their curbside with predictable regularity. Even those who theoretically accept the need for sound solid waste management may not be able to accept the practical application of that support. In the abstract, we endorse the need for new prisons, psychiatric hospitals, halfway houses, airport expansions, or landfills, but social responsibility seems to end and anxiety to begin when any of those is proposed for location in a specific neighborhood.

This suggests that the second aspect of the solid waste crisis is lack of public trust. With so much attention focused on certain notorious cases of inadequate, unsafe disposal of hazardous wastes, it should not be surprising that the public doubts whether the waste services industry or government regulators can adequately protect them from improper disposal of any waste.

Perhaps the most serious aspect of the waste disposal crisis is the lack of political will to act to solve the problem. No one who has ever defended a landfill expansion or a site for a resource recovery plant can be unsympathetic to the hostility that can be directed at members of city councils, boards of supervisors, and planning and zoning commissions who have to make numerous tough decisions. But public debate on the issue of municipal waste disposal has been driven largely by a vocal minority which has often thwarted the greater public good of proper waste management. Acrimony and misunderstanding have frightened elected officials into seeking risk-free alternatives rather than encouraging them to exercise their responsibility to manage risk. State agencies as well have shown a lack of inclination to intervene when elected officials in individual communities are unable to act in the public interest. In some states, executive branch agencies are precluded from making local siting decisions except as they are specifically authorized by legislatures to do so.

## Consequences of Inaction

If we wait too long before addressing the waste disposal problem we can expect to see refuse trucks travelling greater distances on our highways. We can expect to see them turned away at landfills or transfer stations in their own or in other states. We can expect to see refuse piling up on curbsides and in back alleys. Without the most stringent local and state enforcement, we could see a resurrection of open dumps, roadside disposal, and backyard incineration. Pressures will increase to remove wastes greater distances from population centers, creating rifts between urban and rural communities and threatening land areas long thought to be valuable for other purposes. Costs of disposal will rise as a consequence of waiting too long to develop solutions and/or transporting wastes to more distant locations.

Failure to do anything at all in the short term incurs its own kind of cost in terms of a community's quality of life.

## Steps Toward a Solution

If the problem of proper waste disposal were easy to solve, we would likely already have acted on the answer. At a minimum, the nation must pursue at least three courses of action simultaneously.

1. First, we have to stop believing in a magic bullet. There is no single solution that will rid us of our wastes. Proper disposal consists of a mix of tools applied in some ratio to each other with a sanitary landfill as the common element of each disposal system. Waste minimization, composting, recycling, municipal waste combustion, and landfilling are complementary strategies; they are not mutually exclusive. To propose single-purpose alternatives to municipal waste disposal minimizes the complexity of the problem, misleads and ultimately disappoints the public, and allows critics of any particular alternative to eliminate its consideration without having to address how sound disposal can be ultimately achieved.

In 1986, it was estimated that 92% of the solid waste generated was disposed of in some 9,200 sanitary landfills across the country. This number of landfills is half what it was a decade ago and the number continues to shrink. Not only are they filling up, but anticipated new federal and state environmental regulations, coupled with extreme difficulties in siting new landfills, are likely to accelerate the shrinkage. Yet there is no alternative to landfilling an irreducible minimum of the waste stream.

At the same time, reduction of the volume of waste can extend the useful life of landfills. Recycling should be an integral element of a solid waste disposal system wherever possible. The increasing cost of disposal is creating an economic justification for recycling even in the absence of direct subsidies. Well-designed, door-to-door collection programs for recyclables have reduced waste volume by 15 to 20 percent. But, even after well-organized recycling efforts, most of the solid waste remains for disposal by other means.

The other critical component of solid waste management is processing in municipal waste combustion (MWC) systems which simultaneously reduces the volume of waste and recovers useful quantities of energy. These facilities are a far cry from the incinerators of thirty years ago even though the term "incinerator" is sometimes erroneously applied to modern municipal waste combustors. A recent survey identifies 103 facilities in operation, under construction, or in shakedown, and another 72 that are in advanced stages of development. The aggregate design capacity of existing facilities that are operational or in shakedown is 34,564 tons per day, and these plants are operating at 74% of design rate on the average. Thus, approximately ten million tons of solid waste were processed in municipal waste combustors in 1986. By the year 2000, that amount could increase to 37 million tons.

2. Second, we need credible environmental regulations, equitably enforced, both to provide predictability to the waste service industry and confidence for the public. Sanitary landfills and municipal waste combustion facilities are already subject to a plethora of state and federal regulations. NSWMA has been active with states in review of legislation and regulations affecting both. We have also been active in supporting the creation of appropriate federal minimum requirements for solid waste disposal. In particular, NSWMA supports national air emission standards for waste-to-energy facilities. We also support federal regulations to promote proper disposal of ash residue from waste-to-energy facilities.

NSWMA believes that good federal criteria for permitting and operating sanitary landfills could eliminate at least one of the causes of political inaction in siting new landfills. Consequently, we have tried to work closely with the U.S. Environmental Protection Agency to develop adequate federal regulations. However, we remain concerned that EPA may have left large areas of the environment and public health at risk. Specifically, by limiting the scope of its Subtitle D regulations to municipal sanitary landfills only, EPA is addressing only four percent of the non-hazardous waste disposal facilities in this country, and only one to six percent of the non-hazardous waste stream.

At the same time, without significant oversight by the federal government, certain inequities in enforcement of environmental regulations could be perpetuated. For example, in Michigan the "Headlee Amendment" prohibits the state from requiring a municipality to spend money on environmental protection without providing that municipality with a funding mechanism. In Missouri, the "Hancock Amendment" precludes municipalities from spending additional dollars on environmental protection without a vote of the general public.

Inequities can also arise as a result of off-site disposal versus on-site disposal of wastes generated at a site. In Illinois, for example, both hazardous and non-hazardous wastes disposed of at the site of generation are exempt from state environmental requirements. Ohio is currently considering legislation to require gas monitoring plans at active and closed landfills over a 20-year post-closure period. As drafted, the Ohio legislation currently exempts sites that are used for the disposal of material generated on the site.

A third variant of environmental inequity can arise from the sizes of populations served by disposal facilities. In Oklahoma, for example, if a land disposal facility serves a population of fewer than 5,000 people, that facility is exempt from the requirement of daily cover and exempt from the requirement for a site plan to be submitted by a registered engineer. In Nebraska, the state solid waste disposal regulations do not apply to facilities which service cities of the second class and villages. This leaves some 300 sites outside of the regulatory system in Nebraska, since only 38 are licensed to serve first class towns. If credible environmental regulations are to remove an obstacle to disposal facilities, it is critical that EPA assure that these regulations are equitably applied.

But environmental considerations should not be left solely to the final step of controlling disposal. If there are substances that cannot be tolerated in the environment in any quantity or concentration, then the only realistic management strategy is to prohibit that substance from coming into the possession of consumers. In the United States this has been done in the case of PCBs, DDT, and EDB, for example, by prohibiting the production of those substances. In Sweden, concerns over ambient levels of cadmium have prompted regulators to outlaw uses which would lead to disposal of cadmium-bearing material as a solid waste. Source separation alone will not keep certain pollutants like lead and cadmium out of the solid waste stream. The only alternative may be to prohibit their use in short-lived consumable products. While we do not know the full social, environmental, and economic impact of eliminating certain materials from manufacturing, we should as a society be exploring that option. We believe it would be prudent for Congress to mandate and provide resources to EPA to study materials substitution and to work with industry to reduce the use of potentially harmful substances.

3. Third, states need to accept ultimate responsibility for protecting public health and the environment within their geographic areas. In particular, they need to assume

political leadership in permitting disposal facilities. As I have mentioned earlier, we have both the land area and the technologies to deal with our waste generation. The problem is that we are not building disposal facilities nearly as fast as we are closing them down. In states where there is a capacity crisis, for example, Connecticut, New York, Massachusetts and New Jersey, precious few new landfills have been permitted or licensed in the last several years. State authorities more often grant vertical exemptions to existing landfills.

No one seems to want a waste disposal facility, be it a municipal waste combustor, environmentally secure landfill or even a recycling center, in their neighborhood. This public opposition is in large part responsible for the extensive delays in the permitting of new facilities by state authorities. Our members have often said that the specifics of state environmental requirements are not the major obstacles to developing disposal facilities. The real problem is the politics that precludes state authorities from finalizing regulations and permit decisions.

To compound the problem further, sites that require operating permits for disposal must usually go through local or county zoning processes which often result in a rejection of a facility for reasons other than environmental concerns. Each state's regulatory process differs. In some states the permitting log jam occurs predominantly at the level of the state environmental authority. In other states, delays occur at the local level.

The irony is that new facilities are invariably environmentally better than the ones they replace. This is certainly the case with state-of-the-art landfills that are usually constructed with liners, ground-water monitoring, and leachate and methane controls. Similarly, municipal waste combustors, operational or planned, in Florida, New York, and Michigan are replacing outdated substandard incinerators.

States which attempt to manage disposal by closing their boundaries to out-of-state municipal solid wastes offer a classic example of treating a symptom without any understanding of the nature of the problem itself. The solid waste disposal crisis in certain geographical areas is primarily a result of poor or ineffective planning by state and local waste managers. The inability to site new landfill capacity (or permit expansions to existing landfills) because of political and public pressures, and reliance on unrealistic expectations on alternative disposal and recycling options has led to the capacity problem in several states and regions. It is no wonder, then, that we have seen a recent proliferation of state and local laws, orders and ordinances banning the importation of solid wastes as a desperate means of trying to conserve in-state disposal capacity.

In amending the Solid Waste Disposal Act of 1970 by enactment of the Resource Conservation and Recovery Act (RCRA) in 1976, Congress clearly recognized the need and desirability for promoting approaches to solid waste management that transcend local jurisdictional boundaries. Section 1002(a)(4) recognizes that "problems of waste disposal ... have become a matter national in scope and in concern ...". In particular, Subtitle D of RCRA, dealing almost exclusively with solid wastes planning, provides for management plans (Section 4006(c), and Section 4003(a)(2)), addresses the requirements for approval of state plans, and specifically directs states to accommodate the disposal of all solid waste in an environmentally sound manner "(including solid waste originating in other States, but not including hazardous waste)". States need to complete and/or develop their solid waste management plans and then act on them.

Importation bans upset existing institutional arrangements, pay little attention to practical effects on the private waste industry, disposal capacity in the banning state, the consumer, or the environment. The determining factor governing where solid waste should be disposed should be whether the sanitary landfill or other type of disposal or other type of facility is engineered safely and properly to meet all state, local and environmental standards and regulations to protect human health and the environment. This is the bottom line. It is an objective standard which everyone can understand. Most important, to the extent possible it will keep solid waste management out of the purely political arena.

## Conclusion

Ultimately, what is at issue here is the success of our society in dealing with the millions of tons of waste generated each year by our cities. There is no single or simple solution to sound waste disposal, but the technology is available to do it right if the political will is there to do it at all. Though the public and private sectors are often competitors in the waste disposal business, they remain indispensible partners in the overall management of municipal solid waste. We can act together now, or we can reap the consequences later if we violate the public's trust.

Testimony Delivered Before

the

Subcommittee On Hazardous Wastes and Toxic Substances

of

The Senate Committee On Environment And Public Works

by

Michael A. Gagliardo

on behalf of

The U.S. Conference Of Mayors

and

The National Resource Recovery Association

August 6, 1987

Good morning Mr. Chairman, I am Michael Gagliardo, representing the U. S. Conference of Mayors and its affiliate the National Resource Recovery Association. The nation's Mayors formed the Association in 1982 to assist local governments in the development of alternative methods for municipal solid waste disposal, including waste-to-energy facilities and recycling programs. Currently I serve as Trustee to the Association and as Executive Director of the Northeast Maryland Waste Disposal Authority.

Over the past two months increased attention has been focused on how local governments dispose of municipal solid waste. We estimate that over half of the nation's cities have less than ten years remaining capacity in existing landfills. It is our opinion that this shortage of landfill capacity is a warning sign for the nation and that cities must begin on a broad basis to implement comprehensive solid waste management programs which include waste reduction, waste-to-energy, recycling, and landfill components.

We were asked to respond as to whether we thought there was a national solid waste disposal crisis. It is clear that many cities are facing local solid waste disposal crises now and that the barge is an example of one community's crisis.

However, we do not think that the situations which have received extensive media coverage represent an across-the-board national crisis. On the other hand, if cities are unable to begin implementation of long-term solid waste management programs, then by the year 1995 we will in fact have a legitimate national solid waste disposal crisis. It is imperative that any amendments to RCRA assist communities in their effort to develop solutions and to this extent we believe the Committee should begin to consider the following issues to help ward off a true national crisis.

For many of our cities waste-to-energy facilities must play an important role in solid waste management. However, RCRA and EPA's interpretation of it has led to regulatory confusion regarding the disposal of ash residue from waste-to-energy systems. It is clear to us that Congress needs to amend Subtitle D of RCRA to direct EPA to establish acceptable management practices for ash residue. As a part of this authority, EPA needs to address the development of standard sampling protocols for the testing of ash residue, representative testing methods, and best management practices. Until Congress and EPA establish such a regulatory framework for ash residue management, it will be difficult for local governments to develop waste-to-energy facilities as a part of comprehensive waste management plans. We can say, Mr. Chairman, that the regulatory framework developed for ash residue must provide flexibility to local governments in selecting management options. We would be pleased to work with the Subcommittee to supply it with technical information regarding ash residue and current management practices. By the fall of this year we expect to be able to supply the Subcommittee with detailed scientific data on ash residue characteristics.

We also believe, Mr. Chairman, that the Subcommittee needs to begin to explore the development of a national recycling policy. Many local governments are anxious to implement recycling programs to reduce the waste stream, but there is a tremendous lack of practical information regarding implementation of large-scale, comprehensive recycling programs. A national recycling policy must acknowledge that successful recycling programs to date have been extremely site-specific and regional in nature. We believe that a national recycling policy should include technical assistance, market development for recycled materials, demonstration programs and research. To the extent that such a policy calls for elimination of certain compounds or products from the stream of commerce, such policies should be applied on a national scale. A national policy should also address the need for incentives to develop long tern stable markets for recycled materials. Without such long tern markets, local governments will be unable to rely on recycling as a legitimate component of a comprehensive solid waste management program. We would be willing to sit down with the Subcommittee to explore what the components of a national recycling policy might be and to analyze the ability of local governments to assist in the implementation of that policy.

Mr. Chairman, we believe that as the full Committee addresses general solid waste management issues, it should do so in the context of a discussion of amendments to Subtitle D of RCRA and not amendments to the Clean Air Act. It is our understanding that the full Committee intends to markup a clean air bill on September 15 which in its present form addresses many RCRA issues which we do not believe have been fully explored or debated. We would hope that RCRA issues not be dealt with until this Subcommittee has had an opportunity to hold hearings on specific legislative proposals.

Mr. Chairman, amendments to RCRA and the Clean Air Act will very much determine the options available to local governments for the development of solid waste management programs which are protective of human health and the environment and economically feasible. We will be submitting for the record a more detailed assessment of RCRA issues outlined in your letter to us, and we look forward to working with you and answering any questions you may have.

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# TESTIMONY OF DONALD A. DEIESO, Ph.D.

ASSISTANT COMMISSIONER

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION

before the

U.S. SENATE SUBCOMMITTEE ON HAZARDOUS WASTES AND TOXIC SUBSTANCES

COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

WASHINGTON, D.C.

AUGUST 6, 1987

MY NAME IS DONALD A. DEIESO. I AM THE ASSISTANT COMMISSIONER FOR ENVIRONMENTAL MANAGEMENT AND CONTROL OF THE NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION (DEP).

IN THIS CAPACITY, I AM RESPONSIBLE FOR MANAGING THE DEPARTMENT'S DIVISIONS OF WATER RESOURCES, ENVIRONMENTAL QUALITY, AND SOLID WASTE MANAGEMENT. THE DEPARTMENT APPRECIATES THE OPPORTUNITY AFFORDED IT TO PRESENT TESTIMONY BEFORE THE HAZARDOUS WASTE AND TOXIC SUBSTANCES SUBCOMMITTEE CONCERNING THE MANAGEMENT OF MUNICIPAL SOLID WASTE. MY COMMENTS WILL ADDRESS THE CURRENT STATUS OF SOLID WASTE MANAGEMENT IN NEW JERSEY, OUR LONG TERM PROGRAM AND SOME OF THE OBSTACLES INVOLVED IN MAKING IT A SUCCESS AND WHAT WE PERCEIVE THE ROLE OF THE FEDERAL GOVERNMENT TO BE WITHIN THE FRAMEWORK OF SUBTITLE D OF RCRA.

## THE SOLID WASTE CRISIS

THE STATE OF NEW JERSEY IS IN THE MIDST OF A SOLID WASTE CRISIS OF UNPRECEDENTED PROPORTIONS. I WILL BRIEFLY HIGHLIGHT THREE EXAMPLES OF THE SITUATION CONFRONTING OUR STATE WITH RESPECT TO DISPOSAL CAPACITY TO ILLUSTRATE THE MAGNITUDE OF THE CURRENT SITUATION.

- IN APRIL OF THIS YEAR, THREE OF OUR NORTHWESTERN COUNTIES WERE CLOSED OUT OF AN EXISTING OUT-OF-STATE LANDFILL WITH LESS THAN ONE WEEK NOTICE. AS A RESULT, NEARLY 300,000 RESIDENTS WENT WITHOUT COLLECTION AND DISPOSAL SERVICES FOR, IN SOME CASES, AS LONG AS TWO WEEKS.

- ONE OF OUR FOUR REMAINING MAJOR REGIONAL LANDFILLS SERVING FOUR OF OUR COUNTIES, AND APPROXIMATELY 1.7 MILLION PEOPLE, EXHAUSTED ITS APPROVED

CAPACITY THIS PAST JUNE. ONLY THROUGH AN EMERGENCY ORDER FROM THE STATE IS THIS LANDFILL STILL OPERATING, THUS AVOIDING A POTENTIAL CRISIS SITUATION.

- FINALLY, THIS PAST WEEKEND, A SECOND OF OUR FOUR MAJOR REGIONAL LANDFILLS SERVING THE MOST POPULATED COUNTY IN THE STATE, AND APPROXIMATELY 800,000 PEOPLE, CLOSED TO FURTHER LANDFILLING. AS A RESULT, EMERGENCY TRANSFER STATIONS HAVE BEEN PLACED INTO OPERATION TO ALLOW FOR OUT-OF-STATE DISPOSAL.

WE CURRENTLY ESTIMATE THAT OVER THE NEXT FOUR YEARS, WE WILL HAVE A CUMULATIVE SHORTFALL OF 15-20 MILLION TONS OF DISPOSAL CAPACITY. THIS REPRESENTS NEARLY ALL THE SOLID WASTE GENERATED WITHIN THE NORTHERN HALF OF OUR STATE, WHICH IS MADE UP OF SOME 5 MILLION PEOPLE. DWINDLING DISPOSAL CAPACITY HAS ALSO LED TO INCREASED COSTS DUE TO THE NEED FOR UPGRADING REMAINING FACILITIES AS WELL AS INCREASED COSTS TO GO TO DISTANT SITES. DISPOSAL COSTS NOW RIVAL OTHER UTILITY AND SERVICE COSTS SUCH AS WATER AND SEWER AS A PORTION OF MUNICIPAL BUDGETS.

WHILE GROUNDWATER CONTAMINATION FROM IMPROPERLY CLOSED LANDFILLS EXISTS AT MANY SITES, IT DOES NOT REPRESENT AN IMMEDIATE PUBLIC HEALTH THREAT EXCEPT IN ISOLATED CASES. WHEN THESE AREAS ARE DISCOVERED, WE HAVE THE ABILITY TO USE ENFORCEMENT AND REMEDIAL PROGRAMS TO SOLVE THESE IMMEDIATE THREATS. WE ALSO BELIEVE INCINERATOR ASH DISPOSAL HAS THE POTENTIAL TO BECOME A CRITICAL ISSUE IN THE NEXT FIVE TO TEN YEARS AS RESOURCE RECOVERY FACILITIES COME ON LINE.

AS I WILL DESCRIBE FURTHER, NEW JERSEY HAS A COMPREHENSIVE SOLID WASTE PLANNING AND REGULATORY PROGRAM WHICH SHOULD RESULT IN WHAT WE BELIEVE WILL BE THE BEST

SOLID WASTE MANAGEMENT PROGRAM IN THE NATION. HOWEVER, WE ARE APPROXIMATELY FOUR YEARS AWAY FROM ACHIEVING THESE GOALS AND ARE ALREADY FACING A SEVERE SOLID WASTE DISPOSAL CAPACITY CRISIS. WE NEED TO SOLVE OUR SHORT TERM DISPOSAL CRISIS AND AT THE SAME TIME ACCELERATE EFFORTS AT DEVELOPMENT OF LONG TERM PROJECTS AND PROGRAMS.

## NEW JERSEY PROGRAM APPROACH

### GENERAL

LONG TERM SOLID WASTE MANAGEMENT STRATEGY IS A THREE PRONGED APPROACH. THE APPROACH CALLS FOR THE GOAL OF UP-FRONT RECYCLING OF UP TO 25% OF THE MUNICIPAL SOLID WASTE STREAM, PROCESSING 50% OF THE TOTAL SOLID WASTE VOLUME THROUGH RESOURCE RECOVERY SYSTEMS AND DISPOSING OF THE REMAINING 25% OF RESIDUAL ASH AND NON-PROCESSIBLES IN STATE-OF-THE-ART LANDFILLS. THIS MANAGEMENT STRATEGY IS COMPLEMENTED BY STRONG INCENTIVES FOR WASTE MINIMIZATION, RECYCLING, AND ENERGY AND MATERIALS RECOVERY, INCLUDING SUCH ITEMS AS STATEWIDE TAXES ON LANDFILL DISPOSAL. THESE TAXES FUND PLANNING, RECYCLING, RESOURCE RECOVERY AND PUBLIC PARTICIPATION PROGRAMS, AS WELL AS STATE LEVEL MARKET DEVELOPMENT AND PREFERENTIAL PROCUREMENT STRATEGY FORMULATION.

TO IMPLEMENT THESE PROGRAM GOALS, WE HAVE HAD AN EXTREMELY DETAILED AND COMPREHENSIVE STATE STATUTE IN EFFECT SINCE THE MID 1970'S. AS A RESULT, NEW JERSEY HAS BECOME A NATIONAL LEADER IN SOLID WASTE MANAGEMENT. PURSUANT TO THE NEW JERSEY STATE SOLID WASTE MANAGEMENT ACT, WHICH PRECEDED 1976 RESOURCE RECOVERY CONSERVATION AND RECOVERY ACT'S COMPREHENSIVE OVERHAUL OF THE NATIONAL SOLID WASTE DISPOSAL ACT, WE HAVE DEVELOPED DETAILED PLANNING, REGULATORY AND ENFORCEMENT PROGRAMS. AS A RESULT, SEVENTEEN OF OUR TWENTY ONE COUNTIES HAVE selected sites for the development of resource recovery facilities ranging from 200 tons per day up to 3,000 tons per day capacity. Project status runs the full gamut of the project development sequence from the early planning phase to the construction phase. In addition, eleven of our counties have selected sites for the development of long-term, state-of-the-art interim and residual sanitary landfills. (However, we still lack residuals landfills for some major resource recovery projects.) Finally, New Jersey has passed within the past year the most comprehensive mandatory recycling law in the country, which requires all 567 of our state's municipalities to establish mandatory ordinances for the recycling of at least three materials, plus leaves. From a planning standpoint, I believe our state is extremely advanced toward handling long-term solid waste management. However, the facility siting process and changing state-of-the-art in technical requirements for environmental controls have resulted in delays in the implementation process, which developments have led us to the short-term crisis I have just described.

## Problems in Goal Attainment

I would like to highlight some solid waste issues that pose particular difficulty to the state in meeting its management goals. Some of these issues may be common to other states' wastes, others reflect New Jersey's unique issues in resolving a waste disposal crisis.

### Hazardous Waste Discharge from Landfills

Hazardous waste discharge from landfills relates to a variety of potential sources. In the past, regulation of industrial wastes did not properly exclude

HAZARDOUS WASTE FROM LANDFILLS. AS A RESULT, REMEDIAL PROGRAMS HAVE BEEN DEVELOPED TO ADDRESS DISCHARGES DUE TO PAST DISPOSAL.

- PAST DISCHARGES

TO ADDRESS THIS ISSUE, THE DEPARTMENT CONTINUES TO AGGRESSIVELY IMPLEMENT ITS WATER QUALITY MONITORING AND ENFORCEMENT PROGRAMS UNDER THE NJPDES LEGISLATION. BASED UPON A RECENT REPORT FROM THE DIVISION OF WATER RESOURCES, VIRTUALLY ALL LANDFILLS WE HAVE STUDIED THAT OPERATED PRIOR TO THE IMPLEMENTATION OF CURRENT REGULATORY PROGRAMS EXHIBIT GROUNDWATER POLLUTION PROBLEMS, AND AT LEAST 13 LANDFILLS HAVE EXHIBITED GROUNDWATER CONTAMINATION SIGNIFICANTLY IN EXCESS OF NJPDES PERMIT LIMITS. WHILE MANY OF THE LANDFILLS STUDIED WERE LISTED DUE TO THEIR CONTRIBUTIONS OF "CONVENTIONAL POLLUTANTS", SEVERAL FACILITIES HAVE BEEN FOUND WHICH ARE CONTRIBUTING TOXIC SUBSTANCES SUCH AS BENZENE, TOLUENE, VINYL CHLORIDE, CHLOROFORM, LEAD, CADMIUM, DICHLOROETHYLENE, METHYLENE CHLORIDE, AND OTHERS. THESE FACILITIES, AS THEY ARE FOUND, ARE SUBMITTED TO THE DIVISION OF HAZARDOUS WASTE MANAGEMENT FOR CONSIDERATION IN THE NPL RANKING SYSTEM, AND IN FACT A NUMBER OF HISTORIC "SOLID WASTE" DISPOSAL FACILITIES IN NEW JERSEY HAVE BEEN RECOMMENDED FOR INCLUSION ON THE NPL LIST.

- PREVENTIVE APPROACHES FOR NEW FACILITIES

WHILE IT IS BELIEVED THAT SMALL QUANTITY GENERATOR AND HOUSEHOLD HAZARDOUS WASTES TO BE RECEIVED AT NEW FACILITIES WILL BE OF FAR LESS MAGNITUDE AND CONCENTRATION THAN LANDFILLS RECEIVED HISTORICALLY, NEW JERSEY IS REQUIRING STATE-OF-THE-ART DESIGN OF ALL NEW LANDFILL FACILITIES. HOWEVER, IN THE ABSENCE OF CONSENSUS ON

THE ADEQUACY OF THESE TECHNOLOGIES, CONTINUED CHALLENGES WILL BE MADE FOR EFFORTS TO SITE NEW FACILITIES.

LANDFILL CLOSURE

THE LANDFILL CLOSURE NEEDS MUST BE UNDERSTOOD WITHIN THE CONTEXT OF THE HISTORY OF SOLID WASTE DISPOSAL IN THE STATE AND THE ABSENCE OF STRONG REGULATORY OVERSIGHT PRIOR TO THE 1970'S IN THE AREAS OF FACILITY SITING, ENVIRONMENTAL CONTROLS AND WASTE FLOW CONTROLS. THESE FACTORS HAVE CONTRIBUTED TO THE LEGACY OF UNCONTROLLED RELEASES FROM MUNICIPAL LANDFILLS. WHILE FUTURE SOLID WASTE FACILITIES IN NEW JERSEY CAN BE EXPECTED TO EXHIBIT FEW HAZARDOUS SUBSTANCE POLLUTION PROBLEMS DUE TO THE CURRENT DESIGN, CONSTRUCTION, OPERATION, AND WASTE FLOW REQUIREMENTS; PREVIOUSLY TERMINATED FACILITIES IN THE STATE, WHICH NUMBER OVER 300, ARE EXPECTED TO EXHIBIT POLLUTION PROBLEMS RESULTING FROM THE LEACHING OF BOTH CONVENTIONAL AND HAZARDOUS CONSTITUENTS. I WOULD LIKE TO HIGHLIGHT THE FACT THAT THESE ROUGHLY 300 TERMINATED LANDFILL SITES REPRESENT A POTENTIAL COST OF SOME $500 MILLION TO $1.4 BILLION DOLLARS FOR APPROPRIATE REMEDIATION. WE ARE CONCERNED THAT EPA'S RECENT POLICY WHICH SEEKS TO RESTRICT, OR EVEN BAN, FUTURE ADDITIONS OF MUNICIPAL SANITARY LANDFILLS TO THE NATIONAL PRIORITIES LIST (NPL) UNDER THE SUPERFUND PROGRAM WILL IMPEDE OUR EFFORTS TO SECURE PROPER LANDFILL REMEDIATION.

## CONTINGENCY PLANNING

AS PART OF OUR LONG TERM SOLID WASTE PROGRAM, WE HAVE REQUIRED EACH OF OUR TWENTY-ONE COUNTIES TO DEVELOP CONTINGENCY PLANS TO BRIDGE THE GAP BETWEEN THE CURRENT CRISIS AND IMPLEMENTATION OF LONG TERM PROJECTS. THE OBJECTIVE OF THESE PLANS IS TO ADDRESS AND PRIORITIZE POLICY RESPONSE OPTIONS IN THE EVENT THAT SHORT TERM EMERGENCIES ARISE ANYWHERE WITHIN OUR STATE. ASIDE FROM THE COUNTY PLANS, THE DEP IS DEVELOPING THE FRAMEWORK OF A STATEWIDE CONTINGENCY PLAN FOR IMPLEMENTATION IN THE EVENT OUT-OF-STATE DISPOSAL OPTIONS BECOME UNAVAILABLE AND/OR INDIVIDUAL COUNTY PLANS BECOME UNFEASIBLE. OUR PRIMARY APPROACH IN THESE CIRCUMSTANCES WOULD BE THE INTER-COUNTY TRANSPORT AND DISPOSAL OF SOLID WASTE AND THE REOPENING OF CLOSED LANDFILLS ON AN EMERGENCY BASIS, IN PARTICULAR. OUR ABILITY TO HAVE AN EFFECTIVE CONTINGENCY PLAN WILL BE INFLUENCED BY ANY FEDERAL INTERVENTION WHICH WOULD SERVE TO CONSTRAIN INTER-STATE DISPOSAL OPTIONS.

## SITING OF NEEDED FACILITIES

AS HAS BEEN EXPERIENCED IN THE HAZARDOUS WASTE PROGRAM, SITING OF NEEDED SOLID WASTE FACILITIES IS ONE OF THE BIGGEST OBSTACLES AND CHALLENGES TO MEETING OUR LONG TERM MANAGEMENT GOALS. WE DO NOT ADVOCATE FEDERAL INTERVENTION IN THE TECHNICAL ASPECTS OF SITING, BUT DO BELIEVE THAT TECHNICAL ASSISTANCE IN SUPPORTING SOUND DISPOSAL AND RECYCLING TECHNOLOGIES SHOULD BE PROVIDED TO COUNTER THE MISINFORMATION THAT HAS PLAGUED MANY SITING EFFORTS.

FIRST, WE MUST LEARN TO RESPOND TO THE ISSUE OF NIMBY (NOT IN MY BACKYARD). I HAVE WATCHED AS THIS OBSTRUCTIONIST MOVEMENT HAS JUMPED FROM HAZARDOUS WASTE

FACILITIES TO RESOURCE RECOVERY FACILITIES, TO LANDFILLS AND TRANSFER STATIONS, AND NOW EVEN TO RECYCLING CENTERS. OF ALL THE MISCONCEPTIONS THAT WE MUST ADDRESS NONE IS MORE DIFFICULT TO OVERCOME THAN THE MYTH OF "TOTAL RECYCLING". MANY OF OUR RESIDENTS BELIEVE THAT TOTAL RECYCLING IS THE ANSWER. TOTAL RECYCLING WOULD BE WONDERFUL BUT IS DOES NOT EXIST TODAY IN THE UNITED STATES OR ANYWHERE IN THE WORLD. WITH THE FINEST OF TECHNOLOGY, EVEN A SCIENTIFIC LONG SHOT SAYS WE MAY BE RECYCLING 50% OF OUR WASTE BY THE YEAR 2000. THERE IS NEED TODAY, AND THERE WILL BE NEED FOR DECADES TO COME FOR A THREE TIER APPROACH TO SOLID WASTE:

1) RECYCLING (25%)

2) RESOURCE RECOVERY (50%)

3) LANDFILLING/RESIDUALS (25%)

ALL THREE ELEMENTS MUST BE PRESENT IF WE ARE TO EFFECTIVELY MANAGE OUR SOLID WASTE. RECYCLING IS A FIRST STEP IN REDUCING THE VOLUME OF SOLID WASTE, FOLLOWING BY RESOURCE RECOVERY WHICH CONVERTS INTO USEFUL ENERGY AND THEREBY REDUCING VOLUME BY 90%; AND FINALLY, LANDFILLING OF THE ASH WHICH REPRESENTS ABOUT 10% OF THE ORIGINAL VOLUME OF THE SOLID WASTE. WE MUST MORE EFFECTIVELY COMMUNICATE THESE FACTS TO OUR RESIDENTS. WE MUST COUNTER THE PREVALENT DISTORTIONS AND MISFACT WITH GOOD INFORMATION COMING FROM A NUMBER OF RESPONSIBLE INDIVIDUALS.

## FEDERAL/STATE ROLES

WE SUGGEST THAT NATIONAL SOLID WASTE POLICY REFLECT THE SAME POLICY HIERARCHY GOALS TOWARD WHICH OUR PROGRAM IS DIRECTED.

- WASTE REDUCTION (SOURCE)
- RE-USE
- RECYCLING
- MATERIAL/ENERGY RECOVERY

SECURE LAND DISPOSAL

NATIONAL POLICY SHOULD ACKNOWLEDGE THIS HIERARCHY AND DEVELOP PROGRAMS TO ASSIST IN IMPLEMENTING THESE GOALS.

WITHIN THE ABOVE POLICY HIERARCHY, THE FEDERAL GOVERNMENT SHOULD TAILOR ITS LEGISLATIVE AND ADMINISTRATIVE TOOLS TO THOSE FACETS OF THE PROBLEM MOST EFFECTIVELY INFLUENCED BY FEDERAL INTERVENTION. THE FEDERAL ROLE IS MOST EFFECTIVE IN SETTING GOALS AND STANDARDS, MEDIATING INTERSTATE CONFLICTS, PROVIDING TECHNICAL AND GRANT ASSISTANCE, AND STRUCTURING FISCAL INCENTIVES FOR SOUND SOLID WASTE MANAGEMENT. THE FEDERAL ROLE IN SOLID WASTE HAS DIMINISHED OVER QUITE A FEW YEARS AND IS NO LONGER PROMPTING RESPONSIBLE PROGRAM DEVELOPMENT NATIONWIDE. SINCE WE BELIEVE THAT SOLID WASTE MANAGEMENT IS A MOST URGENT MATTER, WE ENCOURAGE DEVELOPMENT OF AN APPROPRIATE FEDERAL IMPLEMENTATION PROGRAM TO REFLECT THE NATIONAL IMPORTANCE OF THIS PROGRAM.

In developing a renewed federal emphasis on solid waste, there are a number of principles we would advocate: 1) First, federal technical standards should be based on the risk level posed by the solid waste management activity; 2) In order to recognize differing risk levels for different facilities and sites, federal standards should be performance based and resist inflexible, prescriptive standards; 3) Federal performance standards should be buttressed with adequate federal technical assistance, and financial assistance; 4) qualitative oversight of state implementation should be undertaken and, when necessary, vigorous and timely enforcement should be pursued; 5) Federal action should set clear minimum standards through formalized rulemaking procedures and allow for flexibility in state and local implementation; 6) Federal standards should promote use of state-of-the-art technology for recycling, incineration and residuals disposals; 7) Federal fiscal policies should favor sound solid waste practices through taxing and procurement programs.

The principles outlined above are recognized in RCRA and HSWA. The implementation of the existing RCRA Subtitle D criteria has provided broad discretion to states to develop programs to meet the intent of national goals. States have had to take responsibility for tailoring their solid waste programs to reflect state priorities and needs. In New Jersey this was led to a comprehensive solid waste management program that transcends the minimum guidelines and criteria for state plans in Section 4002 and 4003 of RCRA, as well as the minimum criteria for sanitary landfills set out in Section 4004.

Because Congress, through the 1984 HSWA Amendments to RCRA, has called for greater national uniformity in solid waste programs, EPA is under a mandate to require states to develop more environmentally sound programs and practices.

WHILE WE AGREE THAT A VIGOROUS FEDERAL ROLE IS NEEDED, WE ARE CONCERNED THAT THE EXPANDED FEDERAL ROLE COULD LEAD TO UNIFORM REQUIREMENTS THAT ARE TECHNICALLY RIGID AND UNNECESSARY TO MEET THE NATIONAL ENVIRONMENTAL OBJECTIVES. FOR EXAMPLE, ONE APPROACH EPA IS CONSIDERING WOULD REQUIRE DESIGN OF LANDFILLS IN CERTAIN LOCATIONS TO BE BASED ON LIMITED FACTORS SUCH AS AMOUNT OF PRECIPITATION AND HYDROGEOLOGIC SETTING. IN NEW JERSEY WITH ITS EXTENSIVE FRACTURED BEDROCK AND SANDY AQUIFERS, THE MOST STRINGENT TECHNICAL DESIGNS WOULD BE REQUIRED. NEW JERSEY HAS TECHNICAL REQUIREMENTS CONCEPTUALLY EQUIVALENT OR BETTER THAN CURRENT REGULATORY SCHEMES BEING EVALUATED BY EPA. IN NEW JERSEY, TECHNICAL DESIGN REQUIREMENTS FOR LANDFILLS ARE BASED ON MULTIPLE FACTORS AND ACCOUNT FOR RESOURCE USE AND DEGREE OF RISK. TO MANDATE SPECIFIC TECHNICAL DESIGNS FOR STATES THAT CAN PROVIDE EQUIVALENT PROGRAMS THROUGH THEIR OWN PERFORMANCE BASED REQUIREMENTS IS UNNECESSARY AT THE FEDERAL LEVEL.

ANOTHER CRITICAL ISSUE IN FEDERAL REGULATION IS ASH GENERATED BY SOLID WASTE INCINERATION. ANY INITIATIVE THAT RESULTS IN ACROSS THE BOARD CLASSIFICATION OF ASH AS HAZARDOUS WASTE, OR THAT DOES NOT ACCOUNT FOR THE TRADEOFF BETWEEN INCINERATION AND LANDFILLING, COULD HAVE DEVESTATING IMPACT ON THE FUTURE OF THE NEW JERSEY SOLID WASTE PROGRAM.

WE RECOGNIZE AND APPLAUD THE EVOLVING FEDERAL ROLE IN THE SOLID WASTE MANAGEMENT SCHEME AS WITNESSED BY THE HAZARDOUS AND SOLID WASTE AMENDMENTS (HSWA) OF 1984 TO RCRA, AND ARE WORKING CLOSELY WITH EPA IN THEIR IMPLEMENTATION AND RULEMAKING EFFORTS PARTICULARLY THE SUBTITLE D CRITERIA REVISION STUDY AND RULEMAKING. WE WELCOME CREATIVE, FLEXIBLE FEDERAL INTERVENTION, AND TRUST THAT SOLUTIONS TO MANY UNIQUE ISSUES NEW JERSEY FACES WILL NOT BE CONSTRAINED OR IMPEDED BY FEDERAL APPROACHES. COMMENSURATE WITH THE LEVEL OF FEDERAL INTERVENTION OUTLINED IN

HSWA, HOWEVER, SHOULD BE THE DEDICATION OF SUFFICIENT TECHNICAL AND FINANCIAL RESOURCES TO ADDRESS THESE MANY FACETED AND BURGEONING SOLID WASTE ISSUES. AS YOU KNOW, HOWEVER, SINCE 1980, WHEN THE FEDERAL FOCUS SHIFTED TO THE HAZARDOUS WASTE PROGRAM UNDER SUBTITLE C OF RCRA, STATES HAVE RECEIVED INADEQUATE POLICY DIRECTION, TECHNICAL ASSISTANCE, AND PLANNING GRANT ASSISTANCE.

WE WOULD ADVOCATE THAT, IN ADDITION TO AN EXPANDED FEDERAL ROLE WHICH IN AND OF ITSELF WILL NOT SOLVE THE PROBLEM, FEDERAL APPROACHES SHOULD LEARN FROM THE LESSONS OF SUBTITLE C IN AVOIDING PRESCRIPTIVE, COMPLEX REGULATORY SCHEMES, AS WELL AS INCORPORATE THE FLEXIBILITY TO ADDRESS THE SENSITIVE AND UNIQUE LOCAL NATURE OF THE SITING AND MANAGEMENT PROBLEMS.

TESTIMONY OF

NORMAN H. NOSENCHUCK, P.E.
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NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
ALBANY, NEW YORK 12233

BEFORE THE

UNITED STATES SENATE HAZARDOUS WASTE AND TOXIC SUBSTANCES SUBCOMMITTEE
ON MANAGEMENT OF MUNICIPAL SOLID WASTE
DIRKSEN SENATE OFFICE BUILDING
WASHINGTON, D.C. 20510-5175

AUGUST 6, 1987

THANK YOU FOR THE OPPORTUNITY TO PARTICIPATE IN THIS HEARING. I WOULD LIKE TO DISCUSS THE CURRENT STATUS OF SOLID WASTE MANAGEMENT IN NEW YORK STATE AND IDENTIFY SOME KEY PROBLEM AREAS IN THE MANAGEMENT OF MUNICIPAL SOLID WASTE.

NEW YORK STATE AND THE NATION FACE A SOLID WASTE DISPOSAL CAPACITY CRISIS. CURRENTLY, MORE WASTE IS BEING PRODUCED THAN CAN BE PROPERLY MANAGED. THE CRISIS WILL SOON INTENSIFY UNLESS ACTIONS ARE TAKEN TO REDUCE THE AMOUNT OF WASTE BEING GENERATED AND TO SAFELY MANAGE AND DISPOSE OF THE REMAINING WASTE. THE RECENT 6,000 MILE ODYSSEY OF THE GARBAGE BARGE HIGHLIGHTED THE PROBLEM OF SOLID WASTE MANAGEMENT AND DISPOSAL.

IN MANY CASES, THE TRADITIONAL DISPOSAL METHOD OF RELYING SOLELY ON LANDFILLS IS NO LONGER VIABLE. IN ORDER TO IMPLEMENT AN ENVIRONMENTALLY SOUND AND INTEGRATED SOLID WASTE MANAGEMENT PROGRAM, LOCAL OFFICIALS MUST INVESTIGATE ALL AVAILABLE SOLID WASTE MANAGEMENT ALTERNATIVES AND DECIDE WHICH COMBINATION OF WASTE MANAGEMENT ALTERNATIVES BEST SERVES THE COMMUNITY. EACH ALTERNATIVE HAS ADVANTAGES AND DISADVANTAGES REGARDING ENVIRONMENTAL AND PUBLIC SAFETY, EFFICIENCY AND COST. IN NEW YORK STATE, OUR INTEGRATED SOLID WASTE MANAGEMENT PROGRAM ENCOMPASSES THE FOLLOWING WASTE MANAGEMENT ALTERNATIVES IN THE ORDER LISTED:

- WASTE REDUCTION TO REDUCE THE AMOUNT OF SOLID WASTE GENERATED;
- RECYCLING AND REUSE TO REDUCE THE WASTE STREAM BY RECOVERY OF RECYCLABLE MATERIALS, INCLUDING COMPOSTING;
- WASTE-TO-ENERGY FACILITIES TO COMBUST HOUSEHOLD AND NON-HAZARDOUS INDUSTRIAL/COMMERCIAL SOLID WASTE TO PRODUCE ENERGY;
- LANDFILLING OF RESIDUE FROM MUNICIPAL WASTE INCINERATOR AND WASTE-TO-ENERGY FACILITIES, AND OTHER MATERIALS THAT CANNOT BE RECOVERED OR COMBUSTED.

ON THE AVERAGE, NEW YORK STATE CITIZENS PRODUCE MORE THAN 50,000 TONS OF SOLID WASTE EVERY DAY. THIS ADDS UP TO A YEARLY ACCUMULATION OF MORE THAN 18 MILLION TONS OF MUNICIPAL SOLID WASTE. APPROXIMATELY 83 PERCENT OF THIS WASTE IS LANDFILLED, 14 PERCENT GOES TO WASTE-TO-ENERGY OR INCINERATOR FACILITIES, AND THE REMAINING 3 PERCENT IS SHIPPED OUT-OF-STATE.

IT IS ESTIMATED THAT AT THE CURRENT RATE OF DISPOSAL, VIRTUALLY ALL OF THE EXISTING LANDFILLS IN NEW YORK STATE WILL REACH CAPACITY BEFORE THE YEAR 1995. THE ONLY LANDFILL NOT EXPECTED TO BE FULL BY THEN IS THE FRESH KILLS LANDFILL ON STATEN ISLAND, NEW YORK CITY, WHICH IS EXPECTED TO BE FULL BY THE YEAR 2000. THE ACTUAL SITUATION IS MUCH WORSE. THIS PROJECTION IS OPTIMISTIC, FOR IT ASSUMES ZERO GROWTH IN PER CAPITA WASTE GENERATION AND ALL LANDFILLS EXISTING AS OF EARLY 1986 WILL REMAIN OPEN UNTIL FILLED.

IN ORDER TO CURTAIL CONTINUING DEGRADATION BY EXISTING LANDFILLS, WE HAVE REQUIRED THE CLOSURE OF MANY PROBLEM LANDFILLS IN THE STATE AND NEGOTIATED ORDERS ON CONSENT WITH MANY OTHERS FOR CLOSURE IN THE RELATIVELY NEAR FUTURE.

HERE'S THE STATUS AS OF MARCH 1987 FOR MUNICIPAL SOLID WASTE LANDFILLS IN NEW YORK STATE:

- -336 ACTIVE, OPERATING LANDFILLS
- - 38 OF THESE 336 LANDFILLS WITH VALID PERMITS TO OPERATE
- -158 LANDFILLS WITH ORDERS TO UPGRADE OR CLOSE:
  - - 29 LANDFILLS WITH ORDERS TO UPGRADE AND REMAIN OPEN
  - -129 LANDFILLS WITH ORDERS TO CLOSE
- -140 UNREGULATED LANDFILLS, WITHOUT PERMITS TO OPERATE OR ORDERS TO UPGRADE OR CLOSE. WE ARE WORKING ON ORDERS FOR THESE LANDFILLS.

WE EXPECT WITHIN THE NEXT TEN YEARS THAT WE WILL END UP WITH ABOUT 100 PERMITTED MUNICIPAL WASTE LANDFILLS IN NEW YORK STATE.

IF ALL THE SOLID WASTE CURRENTLY LANDFILLED FROM LONG ISLAND AND UPSTATE NEW YORK WENT INTO THESE REMAINING LANDFILLS, THIS WOULD GIVE NEW YORK STATE LESS THAN 4 YEARS OF LANDFILL CAPACITY. WITH THE TREMENDOUS AMOUNT OF INFORMATION REQUIRED TO SITE AND CONSTRUCT A STATE-OF-THE-ART LANDFILL, AND THE WIDESPREAD PUBLIC OPPOSITION TO LANDFILLS, THIS IS THE MINIMUM TIMEFRAME IN WHICH A LANDFILL OR OTHER TYPE OF SOLID WASTE MANAGEMENT FACILITY MIGHT BE PLANNED AND DEVELOPED.

THIS SOLID WASTE DISPOSAL PROBLEM IS EXPECTED TO GET WORSE BEFORE IT GETS BETTER. AS CAPACITY DECLINES, SOLID WASTE MAY HAVE TO BE SHIPPED MANY HUNDREDS OF MILES FOR DISPOSAL - AT A SUBSTANTIAL TRANSPORTATION COST. TAXPAYERS WILL BECOME ACUTELY AWARE OF THE PROBLEM AS THE BILLS FOR SHIPPING WASTE OUT OF TOWN, OUT OF COUNTY, AND EVEN OUT OF STATE BEGIN TO APPEAR IN COMMUNITY BUDGETS. FOR

EXAMPLE, THE ANNUAL COST OF WASTE DISPOSAL FOR A FAMILY OF FOUR HAS INCREASED FROM LESS THAN $100 IN A COMMUNITY WITH A NEARBY SOLID WASTE DISPOSAL FACILITY, TO MORE THAN $600 IN SOME LONG ISLAND COMMUNITIES THAT MUST SHIP THEIR SOLID WASTE HUNDREDS OF MILES TO DISTANT LANDFILLS. THESE COSTS ARE NOT THE RESULT OF DISPOSAL FEES IN STATE-OF-THE-ART LANDFILLS BUT DIRECTLY ATTRIBUTED TO TRANSPORTATION COSTS. NEW YORK IS NOT UNIQUE IN FACING SOLID WASTE DISPOSAL PROBLEMS. THE ENTIRE NORTHEAST FACES A SOLID WASTE MANAGEMENT CAPACITY PROBLEM AS DOCUMENTED IN A USEPA PUBLICATION ENTITLED: "SUBTITLE D STUDY PHASE I REPORT" (EPA/530-SW-86-054).

ADDITIONALLY, MANY EXISTING LANDFILLS IN NEW YORK STATE ARE CONTAMINATING THE ENVIRONMENT AND THREATENING PUBLIC HEALTH.

GROUNDWATER CONTAMINATION HAS BEEN DOCUMENTED AT MORE THAN 65 OF THE STATE'S 336 ACTIVE MUNICIPAL WASTE LANDFILLS. CONTAMINATION RANGES FROM IRON, MANGANESE, AND PHENOLS AT SOME SITES TO A VARIETY OF ORGANIC AND INORGANIC CONTAMINANTS INCLUDING VINYL CHLORIDE AND BENZENE, BOTH KNOWN HUMAN CARCINOGENS. UNFORTUNATELY, DUE TO THE COMPLEXITIES INVOLVED IN ASSESSING THE HYDROLOGY AND GROUNDWATER FLOW NETWORKS COUPLED WITH THE LACK OF ADEQUATE MONITORING WELLS, THE NUMBER OF LANDFILLS CONTAMINATING THE ENVIRONMENT IS PROBABLY LARGER THAN THAT IDENTIFIED TO DATE. A RECENT DEPARTMENT STUDY OF 15 LANDFILLS FOUND GROUNDWATER OR SURFACE WATER CONTAMINATION AT ALL OF THE SITES INVESTIGATED. ACCORDINGLY, IT SUGGESTS THAT THE MAJORITY OF EXISTING LANDFILLS WILL EVENTUALLY BECOME CANDIDATES FOR SOME TYPE OF REMEDIATION. THIS PROBLEM IS MOST ACUTE FOR THE MORE THAN ONE-THIRD OF OUR LANDFILLS WHICH OVERLIE SIGNIFICANT GROUNDWATER RESOURCES, INCLUDING THREE FEDERALLY DESIGNATED SOLE SOURCE AQUIFERS. THE MOST CONCENTRATED PROBLEMS OCCUR IN THE SOLE SOURCE AQUIFER OF LONG ISLAND - WHERE

THREE MILLION PEOPLE DEPEND UPON GROUNDWATER AS THEIR PRIMARY WATER SUPPLY. IN ONE CASE WE HAVE A TWO-MILE LONG LEACHATE PLUME EMANATING FROM THE BABYLON TOWN LANDFILL. SMALLER UPSTATE LANDFILLS HAVE BEEN RESPONSIBLE FOR ENVIRONMENTAL DAMAGE RANGING FROM CONTAMINATING RESIDENTIAL WELLS TO DESTROYING PRODUCTIVE TROUT STREAMS.

WASTE-TO-ENERGY FACILITIES ALSO HAVE EXPERIENCED SOME PROBLEMS. RECENT STUDIES OF AIR EMISSIONS FROM 5 OF THE 7 OPERATING RESOURCE RECOVERY FACILITIES IN NEW YORK INDICATE THAT TRACE AMOUNTS OF CONTAMINANTS ARE BEING EMITTED. FORTUNATELY, NONE OF THESE FACILITIES PRESENT AN INCREASED CANCER RISK WHICH POSE AN ACUTE PUBLIC HEALTH CONCERN REQUIRING FACILITY SHUTDOWN. IN THE NEAR FUTURE, THROUGH IMPROVED OPERATIONS INCLUDING, WHERE APPROPRIATE, DESIGN AND EQUIPMENT CHANGES, THESE FACILITIES ARE EXPECTED TO MEET ALL APPLICABLE AIR EMISSION STANDARDS.

A DEPARTMENT STUDY TO CHARACTERIZE ASH FROM 6 OF THE 7 WASTE-TO-ENERGY FACILITIES, USING THE EPA EXTRACTION PROCEDURE (EP) TOXICITY TEST, INDICATES THAT 8 OF THE 17 SAMPLES OF COMBINED FLY ASH AND BOTTOM ASH HAD EXCEEDED THE LIMITS FOR LEAD OR CADMIUM OR BOTH. NEW YORK STATE QUESTIONS THE APPROPRIATENESS OF THIS EP TOXICITY TEST AS A MEASURE OF THE RELATIVE TOXICITY OF MUNICIPAL INCINERATOR ASH. WE WILL, HOWEVER, CONTINUE OUR CHARACTERIZATION EFFORTS TO ENSURE MANAGEMENT AND DISPOSAL PRACTICES PROVIDE ADEQUATE PROTECTION TO HUMAN HEALTH AND THE ENVIRONMENT.

I AM THE CHAIRPERSON OF THE ASSOCIATION OF STATE AND TERRITORIAL SOLID WASTE MANAGEMENT OFFICIALS (ASTSWMO) INCINERATOR ASH RESIDUE TASK FORCE - WHICH INCLUDES REPRESENTATIVES FROM 15 STATES. WE DEVELOPED AN ASTSWMO POSITION

STATEMENT ON MUNICIPAL WASTE INCINERATOR AND MUNICIPAL WASTE-TO-ENERGY FACILITY ASH RESIDUE, WHICH WAS ADOPTED BY THE ASTSWMO BOARD OF DIRECTORS ON JULY 8, 1987 AND SENT TO MR. LEE M. THOMAS, ADMINISTRATOR, USEPA, ON JULY 15, 1987. ATTACHED IS A COPY OF THAT LETTER AND POSITION STATEMENT.

IN ABOUT A MONTH, WE WILL BE MEETING WITH J. WINSTON PORTER, ASSISTANT ADMINISTRATOR FOR SOLID WASTE AND EMERGENCY RESPONSE, USEPA, AND MEMBERS OF MR. PORTER'S STAFF, TO WORK TOWARDS IMPLEMENTING AN ALTERNATIVE MANAGEMENT STRUCTURE FOR ASH RESIDUE AS DESCRIBED IN THE ASTSWMO POSITION STATEMENT.

CLEARLY, MUNICIPAL WASTE DISPOSAL PRACTICES MUST CHANGE. CITIES, TOWNS AND VILLAGES WILL HAVE TO LESSEN THEIR DEPENDENCE ON LANDFILLS FOR SOLID WASTE DISPOSAL AND RETHINK HOW TO SAFELY HANDLE AND DISPOSE OF THEIR WASTE. NEW YORK STATE HAS BEEN AWARE OF THIS GROWING CAPACITY CRISIS AND THE NEED TO SHIFT TO OTHER ALTERNATIVES FOR SOME TIME.

MAJOR EFFORTS TAKEN BY NEW YORK STATE TO DATE, INCLUDE:

- THE NEW YORK STATE 1972 ENVIRONMENTAL QUALITY BOND ACT WHICH CONTAINS LIMITED FUNDS - $175 MILLION - TO ASSIST WITH THE CONSTRUCTION OF WASTE-TO-ENERGY FACILITIES, AND PURCHASE OF LANDFILL AND RECYCLING EQUIPMENT.
- THE LONG ISLAND LANDFILL LAW SIGNED BY GOVERNOR CUOMO IN 1983, THAT MANDATES PHASEOUT OF LANDFILLS IN DEEP FLOW AQUIFER RECHARGE ZONES ON LONG ISLAND AND THEREBY ENCOURAGES TRANSITIONS TO WASTE REDUCTION, RECYCLING AND RESOURCE RECOVERY.
- THE SENSITIVE AQUIFER POLICY WHICH RESTRICTS THE CONSTRUCTION OF NEW LANDFILLS AND CALLS FOR THE PHASEOUT OF INADEQUATELY DESIGNED LANDFILLS OVER EXISTING AND POTENTIAL PUBLIC GROUNDWATER SUPPLIES.

- THE NEW YORK STATE ENVIRONMENTAL QUALITY BOND ACT OF 1986 WHICH PROVIDES $100 MILLION IN NO-INTEREST LOANS TO COVER 50 PERCENT OF THE COST OF PROPER CLOSURE OF LANDFILLS AND GRANTS TO COVER 75 PERCENT OF THE COST OF REMEDIATION OF LANDFILLS WHICH ARE DETERMINED TO BE INACTIVE HAZARDOUS WASTE DISPOSAL SITES.

FUTURE STATE LEGISLATIVE INITIATIVES AWAITING EXECUTIVE ACTION PROPOSE ONE-TIME FUNDING OF PROGRAMS ($10 MILLION TOTAL) IN CONNECTION WITH A RECENT SETTLEMENT OF FEDERAL DEPARTMENT OF ENERGY LITIGATION INVOLVING THE EXXON CORPORATION (STRIPPER WELL PETROLEUM OVERCHARGE RECOVERIES):

- ESTABLISH A WASTE COMBUSTION INSTITUTE AFFILIATED WITH HIGHER EDUCATION TO CONDUCT AND MONITOR WASTE COMBUSTION RESEARCH AND DEVELOPMENT: $5.0 MILLION.
- IMPLEMENT A SECONDARY MATERIALS UTILIZATION PROGRAM TO PROMOTE ENERGY CONSERVATION AND STIMULATE INDUSTRIAL DEVELOPMENT ACTIVITIES: $2.5 MILLION.
- IMPLEMENT A LOCAL RESOURCE AND REUSE DEVELOPMENT PROGRAM TO ENCOURAGE RECYCLING, WASTE COMPOSTING STUDIES AND PUBLIC EDUCATION PROGRAMS: $2.0 MILLION.
- WASTE OIL MANAGEMENT AND RE-USE PROGRAM: PROVIDE 50 PERCENT MATCHING GRANTS FOR TECHNOLOGY ASSESSMENTS AND FEASIBILITY STUDIES: $500 THOUSAND.

THE DEPARTMENT ISSUED THE NEW YORK STATE SOLID WASTE MANAGEMENT PLAN LAST APRIL. THIS PLAN WILL BE UPDATED YEARLY. THIS PLAN SETS SOME DRAMATIC NEW DIRECTIONS FOR SOLID WASTE MANAGEMENT, PRINCIPALLY A SHIFT AWAY FROM LANDFILLING IN THE NEXT DECADE IN FAVOR OF WASTE REDUCTION, RECYCLING AND ENERGY RECOVERY. IT SETS A GOAL OF DECREASING THE MUNICIPAL WASTE STREAM BY 50 PERCENT THROUGH WASTE REDUCTION AND RECYCLING/REUSE. THE PLAN PROPOSES MORE ACTIVE ROLES FOR

BOTH STATE AND LOCAL GOVERNMENT AND EMPHASIZES A WASTE REDUCTION APPROACH THAT WOULD REQUIRE LEGISLATIVE ACTIONS AND CITIZEN INVOLVEMENT.

THESE GOALS CAN BE ACHIEVED BY LEGISLATION, REGULATIONS AND PROGRAMS TO:

- REDUCE THE AMOUNT OF SOLID WASTE GENERATED;
- REMOVE RECOVERABLE MATERIALS FOR RECYCLING AND REUSE;
- REDUCE THE VOLUME OF WASTE STREAM BY COMBUSTING SOME WASTE FOR ENERGY RECOVERY IN THE FORM OF STEAM OR ELECTRICITY; AND
- REVISE CURRENT REGULATIONS TO UPGRADE LANDFILL DESIGNS TO PROVIDE ENHANCED ENVIRONMENTAL PROTECTION.

ANY MATERIAL FOR WHICH MARKETS ARE READILY IDENTIFIABLE CAN BE RECOVERED THROUGH SOURCE SEPARATION AND RECYCLING. IN NEW YORK STATE, AS IN MOST STATES, THE MOST COMMONLY RECOVERED MATERIALS ARE NEWSPAPERS, ALUMINUM, CORRUGATED PAPER, GLASS AND MIXED METALS. MUCH OF THE GLASS, METALS AND ALUMINUM RECOVERED IN NEW YORK STATE ARE IN THE FORM OF BEVERAGE CONTAINERS WHICH ARE REDEEMED PURSUANT TO THE STATE'S RETURNABLE BEVERAGE CONTAINER LAW. OUR MOST RECENT DATA INDICATE A REDEMPTION RATE OF ABOUT 80 PERCENT IN NEW YORK STATE. OTHER MATERIALS ARE BEING RECOVERED AT INCREASING RATES, INCLUDING PLASTICS, YARD WASTES AND HIGHER GRADE PAPERS.

IT IS RECOGNIZED THAT A NUMBER OF COMPONENTS OF THE WASTE STREAM - MOST NOTABLY METALS, GLASS, YARD WASTES AND CERTAIN PLASTICS - ARE POOR INPUTS FOR WASTE-TO-ENERGY COMBUSTION FACILITIES. METALS MAY GENERATE TOXIC LEACHATE FROM BURIED ASH; GLASS CREATES SLAG WHICH INCREASES FACILITY MAINTENANCE COSTS AND HURTS EFFICIENCY; YARD WASTES BURN POORLY WHEN WET; POLYMERS SUCH AS PVC CAN DAMAGE BURN EQUIPMENT AND GIVE OFF A HAZARDOUS EMISSION.

FOR RECYCLING, THE GREATEST IMPEDIMENTS ARE:

- AVAILABILITY OF DURABLE AND EXPANDED MARKETS FOR SECONDARY MATERIALS; AND
- THE PUBLIC'S RELUCTANCE TO PARTICIPATE IN SOURCE SEPARATION PROGRAMS: THE CONVENIENCE FACTOR.

THE FEDERAL GOVERNMENT SHOULD DEVELOP GOVERNMENT PROCUREMENT GUIDELINES FOR MATERIALS WHICH INCLUDE RECYCLED COMPONENTS. FOR INSTANCE, STANDARDS FOR VARIOUS GRADES OF PAPER, PETROLEUM PRODUCTS, AND CONSTRUCTION/PAVING MATERIALS SHOULD BE UNIFORM NATIONWIDE SO AS TO FAVOR RECYCLED MATERIALS IN COMPETITIVE BIDDING OVER VIRGIN MATERIAL. UNIFORM DEFINITIONS OF WHAT "RECYCLED" AND "RECYCLABLE" MEAN SHOULD BE APPLIED TO THESE MATERIALS, INCLUDING PACKAGING.

PREFERENCES FOR RECYCLED GOODS IN GOVERNMENT BIDDING WOULD CREATE MARKET INCENTIVES WHICH WOULD, IN TURN, STIMULATE LOCAL SOURCE SEPARATION PROGRAMS.

THE STANDARDS NEEDED TO ENSURE SOUND ENVIRONMENTAL MANAGEMENT OF SOLID WASTES INCLUDE:

- SOURCE SEPARATION PROGRAMS TO REDUCE THE WASTE STREAM AND MINIMIZE RELIANCE ON DISPOSAL TECHNOLOGIES;
- SOURCE REDUCTION OF MUNICIPAL SOLID WASTES TO REDUCE THE VOLUME OF THE WASTE STREAM UP FRONT: PACKAGING STANDARDS WOULD BE A START;
- RECYCLING OF MAXIMUM FEASIBLE PERCENTAGE OF GLASS, ALUMINUM, MIXED METALS, PAPER AND PLASTICS TO MINIMIZE NEGATIVE IMPACTS ON BURN FACILITIES AND TO SAVE ENERGY AND VIRGIN MATERIALS IN THE MANUFACTURE OF NEW GOODS;
- STRICT DESIGN AND OPERATING STANDARDS FOR WASTE-TO-ENERGY FACILITIES AND LANDFILLS TO MINIMIZE ENVIRONMENTAL DEGRADATION.

MANY HAZARDOUS WASTES FIND THEIR WAY INTO THE WASTE STREAM - BATTERIES, HOUSEHOLD TOXICS SUCH AS PAINTS, PESTICIDES, CLEANERS, STAINS, ETC. HEAVY METALS ENTER THE WASTE STREAM IN THE FORM OF SHREDDED WHITE GOODS, HOUSEHOLD APPLIANCES, SMALL BATTERIES, ETC. STATES MUST IMPLEMENT SEPARATE COLLECTION OR REDEMPTION PROGRAMS FOR MANY OF THESE WASTES WHICH, DUE TO HOUSEHOLD ORIGINS AND RELATIVELY SMALL QUANTITIES, ARE OFTEN EXEMPTED FROM HAZARDOUS WASTE REGULATIONS.

NEW YORK STATE IS IN SUPPORT OF TECHNICAL REQUIREMENTS PROPOSED THROUGH SUBTITLE D CRITERIA REVISIONS, 40 CFR PART 258. AS A MEMBER OF THE SUBTITLE D WORK GROUP, WE SUPPORT THE GOALS TO ENCOURAGE ENVIRONMENTALLY SOUND WASTE MANAGEMENT PRACTICES, MAXIMIZING THE REUSE OF RECOVERABLE RESOURCES AND FOSTERING RESOURCE RECOVERY. WE STRONGLY SUPPORT THE CONCEPT OF APPLYING THE CRITERIA TO ALL MUNICIPAL SOLID WASTE DISPOSAL FACILITIES. WE MUST WORK TOGETHER IN THESE INITIATIVES AND ADDRESS THE SOLID WASTE DISPOSAL CRISIS BEFORE US TODAY.

FOR YOUR INFORMATION, ATTACHED IS A COPY OF THE NEW YORK STATE SOLID WASTE MANAGEMENT PLAN EXECUTIVE SUMMARY.

I WILL BE HAPPY TO ANSWER ANY QUESTIONS YOU MAY HAVE ON THIS MATTER.

ATTACHMENTS

# TESTIMONY OF
# THE ENVIRONMENTAL DEFENSE FUND
# AT A HEARING BEFORE
# THE SUBCOMMITTEE ON HAZARDOUS WASTES & TOXIC SUBSTANCES
# OF THE SENATE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
# ON
# SOLID WASTE MANAGEMENT

August 6, 1987

Prepared by

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On behalf of the Environmental Defense Fund (EDF), I am pleased to respond to your invitation to testify on the issue of solid waste management. EDF is a nationwide environmental education and advocacy organization with approximately 60,000 members. EDF seeks to promote economically sound and environmentally more benign waste management alternatives, such as reduction, reuse, and recycling, and to ensure that solid waste management does not create a threat to the public health and the environment. To these ends, EDF has, among other things, performed an economic analysis showing that large-scale recycling is cheaper than incineration, participated in permitted proceedings for resource recovery facilities, researched the environmental hazards of such facilities, with particular attention to the toxicity of ash residues, successfully petitioned the New York State Department of Environmental Conservation to develop a solid waste plan, and addressed numerous municipal officials and concerned citizens around the country on questions of solid waste management.

## I. THE SOLID WASTE CRISIS

It has become commonplace to refer to the nation's "solid waste crisis." Striking indicators of such a crisis abound: the wandering garbage barge, Philadelphia's export of incinerator ash to Panama, international litigation over the proposed

Detroit incinerator -- these all suggest that things are going badly wrong. In places such as Philadelphia the situation could not be more urgent. While other areas are not in quite so dire straits, and the problem is by and large more severe on the coasts, no municipality can afford not to confront the need for alternatives to traditional waste management practices. And throughout the country the situation, crisis or not, will get worse before it gets better.

Congress has been aware of this problem for some time. The Resource Conservation and Recovery Act of 1976 (RCRA) was a response to the already serious situation that existed more than a decade ago. RCRA's legislative history reveals that even then there was a sense of urgency and a perceived need to change. It is dismaying that so little progress has been made since.

The sources of the crisis are in some ways very simple: there is more garbage (both in absolute tonnages and per capita) and fewer places to put it. This is in part the predictable consequence of population growth and increased development. In addition, increasingly stringent (though generally still inadequate) environmental regulations have increased of the costs of all solid waste management techniques. Such regulations are not, however, the key explanation for increased costs. The real problem is that landfills are being rapidly depleted and new facilities, no matter how well built and stringently regulated, are next to impossible to site. Recent spurts in tipping fees reflect not so much the cost of environmental controls as the sudden recognition that disposal capacity is a shrinking and irreplaceable asset.

The nation is at the threshold of a significant shift in the way it which it handles the 150 million tons or so of solid waste generated each year. The rapid disappearance of landfill space, rising costs, and increasing awareness of environmental dangers mark the iminent demise of present waste management strategies. Just where the transition will lead, and how smoothly it will be accomplished, remain unclear. It depends in good measure on the role the federal government chooses to play.

Perhaps no governmental activity has historically been of more exclusively local concern than waste disposal. Those days are behind us. Increasingly, solid waste is being transported long distances, often across state lines, for disposal. It has been a decade since the Supreme Court ruled that transport of solid waste is interstate commerce and one state cannot exclude trash from another state simply because it is not home-grown. City of Philadelphia v. New Jersey, 437 U.S. 617 (1978). States thus cannot regulate the flow of garbage even if they wanted to. But more is involved than simply the movement of garbage across state lines. Solid waste management has become a vital issue of the public welfare confronting the nation as a whole, and therefore not something the federal government can or should ignore.

## II. OVERALL APPROACH

Traditionally, solid waste management has been a matter of throwing things away. As many have pointed out, there is in fact no "away." Our garbage stays with us, whether in the form of new products, air pollution, or leaking landfills. The challenge is to manage the waste stream in as economically efficient and environmentally benign a manner as possible. The key to such an approach is to rely on more than one waste management technique. It will always be environmentally and economically unsound to put all of one's (rotten) eggs in one basket.

EPA has paid lip service to this principle. In its guidelines for state solid waste management plans, the agency recommends that "[s]ource separation, recycling and resource conservation should be utilized whenever technically and economically feasible ... [and] [s]ource separation, resource conservation and mixed waste processing capacity should be combined to achieve the most effective resource conservation and economic balance." 40 C.F.R. 256.31(e)(4),(6). For such an approach to take hold, however, will require a fundamental shift in how we think about waste management.

The emphasis on an array of different management strategies leads to the familiar hierarchy of preferred waste management strategies: reduce, reuse, recycle, burn (with energy recovery), and bury. There is little controversy about this ordering, though some would reverse the last two items. The disagreement is profound, however, with regard to what portion of the current waste stream should be handled by each technique. EDF generally looks to an overall scenario, to be achieved in the next ten years, along the lines of 10% reduction, 50% recycling and reuse, 25% incineration, and 15% (really about 23% including incinerator ash) landfilling. This arrangement is roughly consistent with the goals in the solid waste management plans of, for example, Portland, Oregon, Berkeley, California, and the state of New York.

Technically, a much higher rate of recycling is feasible. The 50% figure is not a ceiling. At some point in the future this country will be recycling much more than that. The question is when, not whether.

The remainder of this testimony will address steps the federal government might take to help achieve this distribution.

## III. WASTE REDUCTION AND REUSE

The United States produces more than twice as much garbage per capita than any other country in the world. Affluence, abundant natural resources, and an increasing preoccupation with the convenience of disposability have resulted in a waste generation rate approaching one ton per person per year. Indisputably, from both an environmental and an economic standpoint, the best thing to do with a pound of garbage is not to create it in the first place.

EDF and others have proposed a waste reduction goal of approximately 10%. On the one hand, this is ambitious -- strategies for waste reduction are limited and per capita generation continues to rise steadily. On the other hand, the fact that the United States so far exceeds any other country, including those with equivalent standards of living, in its rate of waste generation indicates that there is potential for much more than 10% reduction.

In 1976, Congress directed EPA to conduct "research, investigations, experiments, training, demonstrations, surveys, public education programs, and studies relating to ... the reduction of the amount of [solid] waste and unsalvageable waste materials." 42 U.S.C. 6981(a)(5). EPA's efforts in this regard have been more or less nonexistent. While EPA has, in keeping with a 1984 amendment, 42 U.S.C. 6981(r), investigated possible approaches to minimizing the generation of hazardous waste, the environmental threat, and the need for reduction, are no less in the case of municipal solid waste. Congress should reiterate EPA's obligation to investigate waste reduction options.

One strategy meriting serious review is national packaging legislation. State legislators and agency officials are reluctant to adopt such an initiative at the state level and are looking to Congress for action. A key component of packaging legislation would be a sales or user tax keyed to the amount of packaging. Alternatively, there could be federal packaging standards limiting the amount of packaging. There are obvious and significant logistical problems with such an approach, and EDF cannot offer nor are we aware of an ideal, fully developed proposal. However, with roughly one consumer dollar in ten going toward packaging costs, and with packaging constituting significantly more than a third of the waste stream, such an approach merits full consideration.

A similar proposal, raising less challenging problems of implementation, would be a national sales tax on disposable products (shavers, plates, diapers, etc.) for which reusable substitutes are readily available. The convenience of such items comes at public expense through increased waste disposal costs and environmental degradation; their users should pay that price.

## IV. RECYCLING

Recycling is now receiving unprecedented attention as a serious solid waste management tool. This is in part the result of heightened environmental awareness. Recycling's environmental benefits are compelling: prservation of natural resources coupled with significant reductions in energy use, pollution from the manufacturing process, waste generation, and disposal requirements.

The second, and more important, driving force behind recent interest in recycling has been the solid waste crisis. Tipping fees, which have historically been a few dollars a ton, have broken $50 in many places and are climbing. This changing economic picture has made recycling increasingly attractive because it saves on disposal costs. What was virtue in the 1970s is becoming a necessity in the late 1980s. At the local level, recycling is becoming important because it saves money, not because it saves trees.

Nonetheless, recycling programs remain underdeveloped. As Congress recognized in 1976, the federal government has an important role to play in encouraging the recycling of municipal solid waste. That role too remains underdeveloped.

In part, what is required is to pursue the course charted by RCRA, but with more conviction and commitment. For example, it is absolutely vital that the federal government provide financial assistance to states and municipalities for solid waste planning, programs, and demonstration projects and to private researchers. RCRA as it now exists provides for such assistance. See 42 U.S.C. 6948, 6984-86. As recently as 1984, Congress authorized appropriations for these purposes. However, the appropriations themselves have not been forthcoming. As solid waste management becomes more and more complex and absorbs an increasing percentage of local and state resources, the need for federal assistance grows accordingly.

The appropriate federal role goes much further, extending to measures that remove existing constraints to recycling. One such constraint is that certain manufacturing processes and materials preclude recycling. For example, technology for recycling plastics is underdeveloped. As the plastics portion of the waste stream grows overall recycling opportunities decline. Moreover, many products are made of several different sorts of materials that must be separated before they can be recycled; in the case of certain laminates such separation is not merely an economic burden but a flat impossibility. Finally, many manufacturers are unwilling to identify the materials included in their container, which creates a significant challenge to the potential recycler.

Federal legislation could overcome these problems. Several options deserve serious consideration. First, a requirement that any package identify its components. This would be a typical and unexceptional federal labelling requirement. Second, a requirement that nonrecyclable items be identified as such. Consider the infamous plastic Coke can, recently test-marketed by Coca Cola but presently on hold. The can was made of two types of plastic and had an aluminum top -- a combination that, as a practical matter, made the product unrecyclable. Wishfully, but falsely, the company included the words "recyclable can" on the container. Had Coke instead been required to include the words "nonrecyclable can: this container cannot be recycled," the idea would never have left the drawing board. Third, Congress might consider a variable sales tax, at the wholesale or the retail level, keyed to the recyclability of the package. Such a proposal has been made in New York State. Finally, Congress could ban particular uses of certain materials in light of their impact on recycling. For example, it might continue the existing restriction, which the Food and Drug Administration has recently proposed to eliminate, see 51 Fed. Reg. 4177 (Feb. 3, 1986), on the use of PVC as food packaging.

The federal government also has a vital role in the stimulation of markets for recovered materials. The single greatest perceived barrier to large-scale recycling is the inadequacy of markets for recovered materials once they are collected. EDF considers this fear to be overstated. Thus far it remains largely unrealized, and it is likely that demand will grow up around supply if a steady stream of recovered materials is made available. Nonetheless, governmental steps to stimulate markets are important, if only to get the ball rolling. Congress recognized this in 1976. First, it required federal agencies, pursuant to guidelines to be issued by EPA, to procure products made from recovered materials to the maximum extent practicable. 42 U.S.C. 6962. Second, Subchapter E of RCRA charges the Secretary of Commerce with stimulation of markets for recovered materials. Third, the EPA guidelines for state plans under subtitle D were supposed to consider available new and additional markets for recovered materials. 42 U.S.C. 6942(c)(11); cf. 40 C.F.R. Part 256.

Notwithstanding these provisions, the federal involvement in market stimulation has been minimal. This is largely the fault of the relevant agencies. For example, EPA's failure to produce guidelines for the procurement of recycled products has been embarassing and inexcusable. In fact, EDF has notified the Administrator of its intent to sue to compel compliance with Congress's thrice-stated mandate in this regard. Likewise, the Commerce Department has shown little interest in developing recycling markets. But the fault also lies with Congress, which has failed to back up statutory requirements with adequate funding.

The time has come for participation by every level of government in stimulating markets for recyclables. The Commerce Department must undertake new initiatives on both the national and the international front. The federal preferential procurement program must begin. Congress should consider financial incentives to the use of recovered materials; for example, an investment tax credit for purchase of equipment to process and utilize secondary materials in manufacturing. Federal grants or low-interest loans should be available for firms using secondary materials. Recycling facilities should be exempt from the cap on tax exempt industrial development bonds. Discrimination in favor of virgin materials and products made from them must be eliminated wherever it exists, from product specifications to transportation tariffs.

Undeniably, such a program means significant federal involvement in the marketplace. Before that is rejected as excessively interventionist, one thing must be borne in mind. Recycling's primary competitor for future waste management dollars (and for waste itself), is waste-to-energy incineration.

That industry also is trying to sell a product, viz. electricity or steam generated by burning garbage. These sales are critical to the economic viability of these projects; as a rule of thumb, about half a resource recovery facility's revenue is from energy sales. Yet in most cases the "market" for this product is extremely poor. The only reason it can be sold, and at a favorable price, is that these facilities are "qualifying facilities" under the Public Utility Regulatory Policies Act (PURPA). Electric utilities therefore have to buy, at avoided cost rates, any electricity that resource recovery facilities produce, notwithstanding a general lack of interest in doing so.

By no means does EDF seek the repeal of PURPA, which is an extremely valuable and important statute. Rather, the point is that in the case of waste-to-energy, the federal government has done much more than stimulate markets, it has actually legislated their existence. It should be willing to offer similar support to the recovery of materials from the waste stream.

## V. INCINERATION

As landfills close and costs rise, incineration is increasingly the technology of choice for municipal solid waste management. EPA estimates that over a hundred municipal solid waste incinerators are now in operation and that twice that number are planned or under construction. New York's recent solid waste plan anticipates construction of 38 facilities in that state: in the New York City metropolitan region roughly two-dozen facilities are in existence, under construction, or in the planning stages. This rush toward incineration is in large part the result of governmental support -- both direct, through large subsidies and technical assistance, and indirect, through benign regulatory neglect.

EDF is concerned over this rush to incineration for three reasons. First, we question the cost effectiveness of these projects. Second, we reject the school of thought that underlies most incinerator proposals, viz., that it is appropriate to build one massive, capital intensive, high-technology facility to deal with the entire waste stream. Even if such a facility were desirable, resource recovery facilities do not in fact fill the bill, as they reduce but do not eliminate the need for landfills. Third, these facilities pose significant environmental and public health risks.

EDF's recent scientific and legal focus has been primarily on the hazards of the ash residue. As explained in the attached testimony ("The Environmental Hazards of Ash from Incineration of Municipal Solid Waste," EDF's testimony before the Subcommittee on Transportation, Tourism, and Hazardous Materials of the House Committee on Energy and Commerce, March 19, 1987, with appendices)[*] ash is generally a hazardous waste under current law. Yet incinerator owners and operators have neglected their testing obligations and EPA has been reluctant to press the issue. While we seek enforcement of existing provisions, definitive congressional and/or administrative action is necessary to bring to an end the massive confusion and uncertainty that now clouds this entire issue.

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[*] The attachments referred to have been retained in committee files.

At present, incinerator regulation is left primarily to the states, which have varying standards. Not all states are shouldering this regulatory burden. As a whole, municipal waste incinerators present a significant source of environmental pollution nationwide. EDF therefore strongly supports comprehensive federal regulation imposing achievable constraints on incineration. Because control of air emissions and the safe management of ash residues are critically linked, such legislation must address all media of incinerator pollution to ensure that the potential impacts of this waste management technique are effectively controlled.

Last month, EPA issued an Advanced Notice of Proposed Rulemaking regarding municipal solid waste incinerators. 52 Fed. Reg. 25399 (July 7, 1987). EDF will submit full comments on that proposal in due course and would be happy to provide a copy to this subcommittee. For present purposes suffice it to say that EPA's preliminary proposal does not obviate the need for federal legislation. The proposal is too little too late; it is limited to air emissions, addresses only a handful of the pollutants of concern, and does not anticipate final regulations until 1991.

### A. Incinerator Regulations

Municipal solid waste incinerators emit a wide range of substances with well-characterized impacts on human health and the environment. These include acid gases, heavy metals (which are uncombustible), incompletely combusted substances, such as polycyclic aromatic hydrocarbons and certain volatile organics, and products of incomplete combustion, such as dibenzofurans and dibenzo-p-dioxins. The usual placement of incinerators in major centers of population (and therefore garbage) increases the overall public health threat.

That threat is not limited to emissions from the stack. Incineration is a form of trash processing, with two major outputs: stack emissions and ash residue. The latter includes both what is left on the furnace grate (bottom ash) and ash particles trapped by pollution control equipment (fly ash). Like stack emissions, ash residues contain significant amounts of harmful substances. Indeed, as air pollution controls improve, the items kept out of the air are added to the ash. Careful regulation of both is necessary.

For these reasons, EDF could not support legislation that addressed only air emissions from incinerators without also regulating the treatment and disposal of ash. EPA's approach would be to control air emissions alone. Yet the two outputs are inextricably linked. Preventing emissions of toxic substances through the stack without also providing for controls on ash dipsoal is merely transferring the risks from one point of release to another, without reducing overall risk. Indeed, the hazards of toxins when concentratred in ash may exceed those of the same toxins when dispersed into air in terms of dose-rate and efficiency of multi-media transfer. In short, legislation should cover both air emissions and ash management.

Such legislation has been introduced by Representative Florio (D-NJ) in the House of Representatives. See H.R. 2516, 2517, 2787. Similar bills are likely to be introduced in the Senate. These proposals, which would require EPA to adopt comprehensive standards within a year, provide a sound basis for any incinerator legislation. EDF deems the following basic provisions, almost all of which are called for in Representative Florio's bills, to be essential for protection of public health and the environment:

1. State of the art technological requirements for limiting the emissions of particulate matter, sulfur dioxide, nitrogen oxides, carbon monoxide, volatile organic compounds, lead, mercury, beryllium, hydrogen fluoride, hydrogen chloride, antimony, arsenic, barium, cadmium, chromium, cobalt, copper, nickel, selenium, zinc, polychlorinated dibenzo-p-dioxins, polychlorinated dibenzofurans, and polynuclear aromatic hydrocarbons.

2. Health standards based on levels of human exposure determined through biological monitoring of members of the affected population.

3. A requirement that an applicant for a permit to construct an incinerator undertake comprehensive waste management planning with a view to maximizing reduction,

recycling, and separation.

4. Continuous monitoring of emissions and operating parameters to the extent available technology permits, and frequent stack tests to determine emissions of those substances not monitored continuously.

5. Operator training and facility maintenance requirements.

6. A speedy timetable for promulgation of standards, with default provisions to ensure effective emissions controls should EPA fail to adopt standards according to the statutory schedule.

7. Hazard-testing procedures for incinerator ash that reflect all environmental pathways through which ash-borne toxins can be reach human beings, e.g., through inhalation, incorporation into the food chain, or surface water run-off.

8. Separate testing of fly ash, bottom ash, and combined ash. By showing that combining fly and bottom ash greatly increases the toxicity of botttom ash alone, such testing may demonstrate that fly and bottom ash should be separately managed to limit the total amount of hazardous material.

9. A requirement that facilities either treat ash so that it passes the tests for hazardousness, or dispose of ash that flunks those tests in the same manner as hazardous waste.

### B. Selection of Wastes for Incineration

Most of the toxins of concern in emissions and ash are not created by the incineration process; they are in the waste stream. In the case of heavy metals incineration is essentially a process of smelting, whereby the metals are highly concentrated as the combustible components of the waste stream are dispersed into the atmosphere. It is therefore more effective to keep materials of concern out of the incinerator in the first place than to capture them at the stack (to the extent possible) and then have to dispose of them under strict controls.

Three intertwined considerations should go into a determination of whether a component of the waste stream is appropriate for incineration. First, items that are poorly combustible or noncombustible should be kept from the incinerator feed. These do nothing but lower the Btu content of the waste and increase the amount of ash. Second, materials that carry a disproportionate share of the eventual toxic loading should be excluded. This category, which overlaps significantly with the first, includes such metal-bearing items as batteries, waste oil, paints, color-printed material, and consumer electronics. Finally, items that clearly have a higher and better use should not be burned. For example, yard wastes should be composted, even if only to provide landfill cover, rather than put into the incinerator. In fact, yard wastes fall into all three categories: burning precludes more valuable uses; yard wastes lower combustion efficiency by increasing moisture content; and they are the key contributor to emissions of nitrogen oxides, which are difficult to control at the stack.

This approach obviously ties in with an increased role for recycling and with balanced solid waste management as described above. Recycling can have a significant impact on the quantity and nature of incinerator emissions. First, by reducing the volume of wastes to be burned, recycling reduces the mass of toxic emisions. Second, targetted recycling, directed at, for example, batteries or newspaper, would significantly reduce the lead, mercury, and cadmium in incinerator emissions and ash. Third, recycling bottles, cans, and other noncombustible items improves combustion efficiency, with resulting improvements in emissions. Viewed as a technique of pollution control, or, perhaps, as a way of avoiding the expense of disposing of ash as a hazardous waste, such recycling programs are all the more attractive economically.

### C. Modification of Products and Consumption Patterns

While preventing incineration of harmful items is preferable to controlling them once burned, the most effective intervention would be even earlier, avoiding creation of such items altogether. EPA has ample authority under the Toxic Substances Control Act (TSCA) to reduce or eliminate the use of toxic metals, such as lead, cadmium, arsenic, and mercury, in consumer products. Indeed, TSCA explicitly directs EPA to consider disposal impacts in assessing new and existing chemicals.

Our own national experience, as well as that in other countries, should encourage vigorous exploration of this option. We have required development of subsitutes for PCBs, asbestos, and lead in paint -- all at one time entrenched in the product stream -- because of their threats to public health. The same principle applies to dangers created by disposal. The Swiss Federal Institute of Technology reports that Norway required significant reductions in the use of chromium, lead, and cadmium at the level of production before going ahead with an incineration program. The movement to incineration provides additional impetus to remove certain toxins, primarily lead and cadmium, from the waste stream altogether to prevent their dispersion.

This is an approach that obviously can only be effective at the national level. EDF has urged EPA to make use of TSCA to prevent the hazardous ash problem from arising. An unusual collection of interests, including municipalities and the resource recovery industry, which has no desire to be a hazardous waste generator, would probably support such measures. To date, however, this suggestion has received little active support from the agency. EDF is continuing research into the feasibility of removing heavy metals from the product stream. Should EPA fail to take such steps, the task may fall to Congress.

## V. LANDFILLS

In the 1984 RCRA Amendments, Congress directed EPA to revise the criteria defining "open dumps," which are in turn prohibited under subtitle D of the statute. These criteria are, in effect, federal landfill regulations. EPA has said it will propose the revisions this month. At this point, congressional involvement in landfill regulation would be inappropriate. However, continuing oversight of EPA's efforts is necessary. At present, it appears that EPA's proposal will be much less than comprehensive and perhaps inconsistent with congressional intent. While the regulatory process should be allowed to run its course, additional congressional action to ensure minimumn environmental safeguards for land disposal of solid waste may yet be necessary.

## VI. CONCLUSION

EDF appreciates the invitation to provide the subcommittee with its views on solid waste management generally, the nature of the crisis facing this country, and the appropriate federal role in achieving a solution. EDF is at the subcommittee's disposal should it require any further information.

# RESOURCE CONSERVATION AND RECOVERY ACT—OVERSIGHT

## Municipal Solid Waste Management

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THURSDAY, OCTOBER 1, 1987

U.S. SENATE,
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS,
SUBCOMMITTEE ON HAZARDOUS WASTES
AND TOXIC SUBSTANCES,
*Washington, DC.*

The subcommittee met, pursuant to notice, at 9:30 a.m., in room SD-406, Dirksen Senate Office Building, Hon. Max Baucus (chairman of the subcommittee) presiding.

Present: Senators Baucus, Lautenberg, Reid, Graham, Durenberger, and Chafee.

### OPENING STATEMENT OF HON. MAX BAUCUS, U.S. SENATOR FROM THE STATE OF MONTANA

Senator BAUCUS. The subcommittee will come to order.

Taking out the garbage used to be a simple household chore, but as we will learn from these hearings, our Nation's solid waste problem is anything but simple. Not only is America being buried in trash, but trash itself contains many dangerous toxics. Thus, we have to be concerned about what is in our trash, as well as how we get rid of it.

In 1976, Congress passed the Resource Conservation and Recovery Act. Getting America to recycle more was a major thrust of that legislation. Unfortunately, recycling of solid and hazardous waste has not received the attention that Congress had hoped for. As Federal policy, our goals to recycle more remain largely unfulfilled.

Today, a decade after the enactment of RCRA, we have learned that recycling is more than just a method of resource conservation, it is also a means of controlling hazardous wastes.

Many products contain small amounts of toxic constituents. Individually, these products are relatively safe, but collectively they are a source of serious pollution from landfills and incinerators.

Recycling, reuse, and source reduction will probably never eliminate the need completely of landfills or incineration, but as part of an overall solid waste treatment policy, these proven techniques can play a major role in reducing hazardous wastes.

The nation is slowly awakening to the burgeoning mountains of garbage it generates. You have seen television pictures of a homeless garbage barge resting quietly in New York Harbor, a stark reminder of a growing national problem.

On Staten Island, the Fresh Kills Landfill, grows by 24,000 tons per day. When completed, it will be the highest landmark along the eastern seaboard, from Canada to Buenos Aires. Yet, while the supply of garbage continues to grow, new landfill capacity is not being developed.

Local officials are running headlong into a wall of opposition when it comes to opening new landfills. The public's fears of toxic leachate polluting groundwater and streams are severely restricting the acceptability of this option.

One response is to turn to incineration, burning trash, as its detractors refer to it, or resource recovery, as its promoters call it. Two hundred municipal solid waste incinerators have been proposed, and the list is growing. But for many of the same reasons that landfills are not being opened, there is growing opposition to municipal incinerators.

Incinerators pollute the air with toxic dioxins, acid emissions, and hazardous emissions of metals. When the waste is reduced, the ash from the incinerator contains toxic materials requiring treatment or special management.

I have been working with Chairman Burdick and other members of the committee to develop legislation to control toxic air emissions and to move to fly-ash isolated and ultimately treated. I support those efforts of the chairman.

The looming proliferation of uncontrolled municipal incinerators poses a serious threat to the environment, and EPA's failure to act forces the Congress to act. That, however, is only half of the answer. My goal is to develop legislation to address the full range of municipal solid waste questions before us, which examines the substances contaminating our trash contaminating our trash to see if these substances are really necessary for the products we use.

We have reached the point where trash should no longer be considered simply a byproduct by a throw-away society. We need to rework our definition of trash. It is, in essence, that portion of the product that is not used up.

How we dispose of a product must now become part of our thinking, and it goes into designing of that product. We must ask ourselves: Do we need the cadmium in printing ink? Can we bleach paper without using chlorine compounds? Can we eliminate the dioxins and chlorine in plastics? Can we eliminate the use of mercury in batteries?

This new way of thinking about making products must be accompanied with a rethinking of our throw-away mentality. In the future, we will need to rely upon every available means to handle our waste. Landfills and incinerators will continue to play a large role in any waste management scheme. Recycling is the key to making both of those management options work for us.

In short, we need to combat our trash problem from beginning to end—the day a product or package is designed to the moment it lands in the dump. Only with such a comprehensive approach can we reduce the mountains of trash we have created.

I note that the very distinguished Senator from New Jersey is with us.

Senator Lautenberg, do you have a statement?

## OPENING STATEMENT OF HON. FRANK R. LAUTENBERG, U.S. SENATOR FROM THE STATE OF NEW JERSEY

Senator **Lautenberg**. Thank you, Mr. Chairman.

My compliments to you for holding this hearing. This morning, we are going to continue to look at the management of municipal solid waste by learning first-hand from those involved in some of the industries that generate these wastes as well as those who recycle such materials into useful products.

I believe that the recycling of municipal wastes is one of the most important steps that we can take if we are to have any hope of solving our solid waste management problems.

New Jersey has moved forward on recycling, having enacted the Nation's first statewide recycling law this year. An important objective of this law is to achieve a 25 percent reduction of municipal solid waste.

The Hazardous Waste Reduction Act, S. 1429, that I introduced, with the cosponsorship of Senators Stafford, Chafee, Durenberger, Baucus, Mitchell, and Dodd, calls for technical assistance grants to States to move waste recycling and reduction programs forward nationwide.

Recycling of plastic products could also go a long way towards eliminating plastic pollution of our waters and oceans. This notion is compatible with S. 633, my bill to control plastic pollution.

Again, Mr. Chairman, I would like to thank you for arranging this informative hearing. I look forward to learning about the experiences of the witnesses regarding recycling and other methods of solid waste management.

Mr. Chairman, I will not be able to stay with you; we have, as you know, so many things going on right now. I may submit questions, at a later date, for the record and ask that they be responded to in writing, if that's acceptable?

Senator **Baucus**. Absolutely. Senator, you have been, I think, one of the strongest proponents of a better environment, stronger than almost any other Senator I can think of. Any contribution you want to make, any question you want to ask, will certainly be accepted.

Senator **Lautenberg**. Thank you. You know, in New Jersey, we have lots of people, the most densely populated State in the country, and we have to figure out ways of dealing with these problems. The precious little green space that we have, unlike Montana, is small and valuable, and we have to work hard to protect it. We just can't fill it with garbage. So we have to deal with these problems, and this is an excellent opportunity to do so.

Senator **Baucus**. You want to keep it the Garden State.

Senator **Lautenberg**. Yes, want to keep it the Garden State.

Senator **Baucus**. Let's turn now to our panel. Our first witnesses will be Rebecca Nord with Midwest Paper Stock Company from Bloomington, Illinois; next, Patricia Moore, Wilton Recycling Center in Hancock, New Hampshire; John Edgren from the Ecology Center of Ann Arbor, Michigan; Gary Liss of Solid Waste Program in San Jose, California; and James Greco of Browning-Ferris Industries in Washington, DC.

Rebecca, why don't you begin. I would like to remind everyone that we have a five-minute rule for each witness. Your full statement will be made part of the record. In addition to that, the hearing record will remain open for 10 days following the date of this hearing if you have additional information that you want to submit.

Rebecca.

## STATEMENT OF BECKY NORD, SECRETARY/TREASURER, MIDWEST PAPER STOCK, INC.

Ms. **Nord**. Good morning.

My name is Becky Nord, and I am Secretary/Treasurer of Midwest Paper Stock, located in Bloomington, Illinois. Midwest Paper is a paper recycling company and it is also a member of Council of Waste Recyclers of the National Solid Waste Management Association. I would like to thank the subcommittee for giving me this opportunity to testify here today.

Midwest Paper Stock began its activities as a paper recycler in January of 1984, and recently expanded operations to include glass and aluminum. We are affiliated with a waste collection and disposal company that has been in business since 1964.

Like many waste disposal companies, we first turned to recycling when it became apparent that even in rural areas such as Illinois, we would soon face a shortage of landfill capacity. Recycling seemed like a viable means of reducing the amount of waste we normally send to the local landfill. As disposal costs have risen, recycling has become increasingly cost effective.

Today, Midwest Paper Stock collects several grades of paper from offices, stores, print shops and other businesses in our area. We also purchase baled cardboard from retailers who do their own segregation and baling. Although we prefer to have the recyclables separated from other wastes by the generator, we accept mixed loads of waste material for separation at our facility as long as the waste is rich in a recyclable component.

We are now shipping approximately 1,500 tons of waste paper per month and that amount is increasing.

This past August, we expanded our recycling efforts to include both glass and aluminum. We purchase these products from the general public as part of our full solid waste management service. This, in turn, has encouraged the generators of such wastes to separate the recyclables from the nonrecyclable materials. It also ensures that we have a constant source of clean raw material.

Interestingly, our most challenging obstacle has not been the actual process of recycling, it has been securing the markets for the recycled materials. True recycling is only completed when the materials have been returned to commerce. It does not simply involve collecting paper, glass and aluminum.

Unfortunately, as things now stand, there is little incentive for prospective buyers to use recycled products. Let me give you an example. Over the past 5 years, according to the American Paper Institute, exports of recycled waste paper have increased at a compounded annual rate of 12 percent. In all 3.6 million tons were sold abroad last year. Meanwhile, domestic usage has increased by only 4 percent.

Ironically, then, foreign buyers may largely determine the fate of the U.S. recycling market. The major bottleneck to expanding our recycling activities lies in the capacity of the domestic industry to convert recyclables into new products.

Congress, and other branches of government, could play a significant role in helping our industry to address this problem. Here are three steps that I would like to recommend.

First, Federal, State and local agencies should buy recycled paper products whenever possible and include them in their government procurement programs. Such policies would send an important message to major suppliers and distributors who might then make these products more readily available to other potential customers.

Second, we would urge the Congress to consider reintroducing investment tax credits for companies which want to collect recyclables or bring them into commerce. Similar credits could also be extended to customers who buy a significant quantity of recycled products.

Finally, our business received a grant from the State of Illinois which enabled us to expand our recycling operations. Even so, I have mixed feelings about grants because all too often they are awareded to organizations that could not exist without them. I do not favor subsidizing the continued operation of a failing recycling venture. But with proper controls, a carefully monitored grants program can be helpful in stimulating the growth of successful recycling efforts.

Recycling is a vital and environmentally sound component of the total waste management system. Congress and other levels of government should encourage recycling by initiating a program of tax incentives and by favoring the use of recycled goods. My company and our trade association, the National Solid Waste Management Association, are eager to work with you in bringing this goal about

Thank you.

Senator BAUCUS. Thank you very much, Ms. Nord.

Ms. Moore.

## STATEMENT OF PATRICIA MOORE, DIRECTOR, WILTON SOLID WASTE DISTRICT

Ms. MOORE. I want to thank you for the opportunity to come here and speak with you.

The Town of Wilton is part of the Wilton Solid Waste District is a small rural district in southern New Hampshire. It comprises only 9,000 people.

Senator Baucus has pointed out to us the concerns with garbage, and the very local concern about what we are going to do with all this material. I think that the public wants to be part of the solution, and public officials must realize that the public wants to be part of the solution. They don't want an incinerator, or whatever, foisted upon them. They want to have the ability to be involved and to make a difference.

In Wilton, we have a solution, which is, I believe, why I was asked to come here today. We have been able to divert almost 50 percent of the material that comes into our facility. The reason we are able to do this is because the district made a commitment to recycling first, then incinerating, and then landfilling whatever residue was not able to be recycled or incinerated.

The people in Wilton are really proud of what we do there. They feel they have control over their garbage and they have control over the cost of that garbage. You gave me five minutes, and I wish I could take that five minutes and take each of you to Wilton and let you watch the people there, because it is really impressive what they will do and how much cooperation they will give.

We separate into a lot of different categories—if you read my testimony, I have them listed out—and you would think that people would rebel against that, but they don't. They want to do more. They want to be able to do as much as possible to keep their taxes low and to be a part of the solution.

There is a concern, which has been addressed, with what is going to happen to a district like Wilton, that has a solution, when New Jersey and all the other New England and northeast states come on line with programs that are going to be producing large quantities of recycled products.

In Wilton, we process to a very low degree of quality because it is a rural facility and we do it because it is inexpensive, not because we are high minded. If the markets are flooded with materials that are of higher quality, we could be in big trouble. I think that the Federal Government can be a part of helping us out.

I think that the Federal Government's role should be one of facilitating recycling, a leadership role in recycling, but not just recycling, waste reduction and reuse are also very important. Because of what we do in Wilton, people have changed their buying habits. We truly reduce/reuse/recycle.

The leadership and the facilitation that the Federal Government can promote would start at the level of education. I believe that this is one of the most important things that the government can do, to educate the public on: How do we reuse something, and what can be reused? How do we recycle in our town, and how do we get it started?

I have people calling me up four or five times a week, and I get letters daily, saying: We have heard about what you are doing in Wilton, we would like to do that, too. Can you please help us?

There is only one of me, and I am a municipal official, and not terribly well paid. I think that it is not our role, a small town in New Hampshire, to be the one that helps all these little towns all over the United States get their programs started. I think that perhaps someone with a little more money could do that.

The other role the Federal Government should play, besides education, is one of market development, which is the concern I just addressed. It is very important that the Federal Government and all governments, State and local, buy materials that are recycled, that would be a very important leadership role.

It is important to develop markets. There is a lot of potential for solid waste, and not just in the markets that are happening right now, the traditional paper, aluminum and glass markets. I think that, with some money and some fresh ideas, there is a lot more that could be done with solid wastes than is being done. With the high cost avoidance potential of disposing of the wastes, we now have the ability and the reason to promote alternative markets.

I think that industry has to take a bigger role. They have to take more responsibility for what they are producing. Every industry should take responsibility for what they are producing, and the true cost of a product, not just to make it but to dispose of it, should be involved in the process of designing something.

In conclusion, I want to stress the reuse of materials and the importance of that. In Wilton, we have a bookcase and a clothing bin, and we have a drop-off area where people can bring materials that they think someone else can use. That is so important, and it is important to promote the reuse of materials.

We do have one complaint with that policy in Wilton, and that is the wife who complains that her husband comes home with more than he left with. But I think that it is important that people be a part of the solution. The public needs to be involved. They don't want a solution given to them. They want to be part of it.

Thank you.

Senator **Baucus**. Thank you very much, Ms. Moore.

We are joined now by two Senators, Senator Chafee and Senator Reid. If you have opening statements, this would be the appropriate point.

## OPENING STATEMENT OF HON. JOHN H. CHAFEE, U.S. SENATOR FROM THE STATE OF RHODE ISLAND

Senator **Chafee**. Thank you, Mr. Chairman. I would like to submit a statement, and also apologize. As you know, we are receiving a report in the Finance Committee, on the Canadian Trade Negotiations, which both of us have been deeply involved in. Unfortunately, I have to attend that.

This is good testimony we are having here, particularly on what to do with the materials when you get them. I will submit my statement, and I regret that I have to leave at 10:00 o'clock.

[Senator Chafee's statement follows:]

### Opening Statement of Hon. John H. Chafee, U.S. Senator From the State of Rhode Island

I want to Express my thanks to the distinguished chairman of this subcommittee, Senator Baucus, for scheduling hearings on the urgent problem of how we, as a nation, are going to manage the solid waste crisis.

We live in a disposable society. Everything from razor blades to plastic cups to flashlights is disposable. As a result we generate an enormous amount of trash which ends up at the local landfill. This "disposable" mentality is a vestige of our American past, where there was always a new frontier to move on to. Once the land became fallow, the pioneers would simply push on westward into the seemingly inexhaustible vastness of the territories.

The problem now is that there is no more frontier, and the local landfill is quickly running out of space. By some estimates more than half the cities in the United States will exhaust their current landfills by 1990. In attempting to locate new landfills or incineration facilities in populated States, we run straight into the "not in my back yard" syndrome. There are no easy answers or painless solutions.

There is perhaps no more fitting or appropriate symbol of this problem than the infamous wandering garbage barge which traveled over 6,000 miles searching for a disposal site. The real tragedy about this barge is that it was loaded with materials which could have been recycled. By some estimates as much as 50 percent of the garbage which makes its way into landfills, including some plastics, could be profitably recycled.

In my own State of Rhode Island there is a great deal of support for recycling. This is evidenced by the fact that Rhode Island was the first State to pass a mandatory recycling law. This month, two communities in Rhode Island will be required to package glass, aluminum, and plastic soda bottles and milk jugs separately from other trash. In the near future, all Rhode Island residences will receive a 20-gallon trash container, compliments of the State, for recyclable material.

The passage of recycling legislation in Rhode Island, and similar legislation in New Jersey, sends an important message: State and local officials, faced with soaring land disposal costs and limited landfill capacity, are insisting, for economic reasons, that trash be recycled.

Last year, and again this year, I introduced legislation to deal with the problem of plastic waste. I have become increasingly aware that plastic waste is not just a problem in the marine environment, but also as a component of the solid waste stream.

Clearly, then, recycling must be part of an integrated strategy including source reduction and incineration to address the solid waste crisis. I look forward to hearing constructive testimony on this subject.

Senator Baucus. Thank you, Senator Chafee.

Senator Reid.

## OPENING STATEMENT OF HON. HARRY REID, U.S. SENATOR FROM THE STATE OF NEVADA

Senator Reid. Mr. Chairman, thank you very much. I have a statement that I also want to make part of the record. I apologize for being late to your subcommittee.

[Senator Reid's statement follows:]

### Opening Statement of Hon. Harry Reid, U.S. Senator From the State of Nevada

Mr. Chairman and Members of the Subcommittee, I believe recycling is a part of the solution of this nation's growing problems in disposing of our solid wastes. I am pleased that we have, today, people who share that belief. I commend the Chairman for inviting these people to share with this committee their experiences.

Mr. Chairman, it seems that no matter where one lives, the proper disposal of our wastes concerns many Americans. The plastic wastes that foul our nation's oceans and shorelines concern a great many people, even those who live in a desert environment like Nevada. My constituents have written to me of their concerns with the plastic wastes that float by them when they visit the ocean. People who live in, and visit, Las Vegas, Nevada write letters to the editors of our papers expressing their displeasure with the waste that litters our roadways and desert landscape. Our wastes need not continue to litter our landscape; rather, they can be collected and turned into useful products.

Attempts to collect that waste and recycle it into useful products have met with varying degrees of success throughout the nation and at various times in our history. We are often reminder that during the depression of the 30's and the world wars, recycling of a great many items was widespread. Unfortunately, what we have done in the past seems to have been forgotten as we look towards the future and our growing problems in disposing of our wastes. Our past efforts would indicate that we could do more to encourage recycling today.

Mr. Chairman, a number of lessons can be learned from our witnesses today. A number of factors affect recycling efforts, and the lessons that our witnesses provide us today will be important to the Congress in addressing those factors that may limit the future recycling of our wastes.

Market forces and economic conditions have a large impact on recycling efforts. At a previous hearing, I related the story of a Federal employee's attempt in Las Vegas to promote the recycling of waste paper from government facilities. A declining housing market and increased efforts to recycle waste paper in other western cities led to an oversupply of waste paper and the end of that recycling effort. Any attempt to increase recycling efforts on a national scale must recognize those market forces and economic conditions that can spell trouble for recycling programs. I am particularly interested in how our witnesses have dealt with those market forces.

Transportation expenses for raw materials and recycled wastes in also an important factor for the promotion of community recycling programs. Las Vegas lies hundreds of miles away from major markets for recycled wasters. Can the transport of those wastes be economical to the point where large amounts of wastes could be recycles from a state like Nevada? I trust that our witnesses will be able to provide us with the lessons that they have learned on the transport of raw materials and recycled wastes.

Convenience is another factor that is critical to the success of recycling efforts. Public acceptance of efforts to reduce our consumption of natural resources and reduce our wastes hinges on the amount of effort that must be expended to collect, store, and transport the waste materials. The lessons that our witnesses have to offer on this subject will be important if we are to encourage further recycling of our nation's wastes.

Mr. Chairman, I thank you for your efforts to bring together these witnesses who have endeavored to recycle our wastes before they reach our oceans, landscapes, or landfills.

Senator BAUCUS. We will continue with the testimony, and Mr. Edgren, you are next.

## STATEMENT OF JOHN EDGREN, THE ECOLOGY CENTER

Mr. EDGREN. I would like to thank you for the invitation to come and speak here. I am speaking on behalf of the Recycle Ann Arbor Program of the Ecology Center in Ann Arbor, Michigan.

I thought I might begin by talking briefly about the nature of the problem, about broad approaches for dealing with it, about problems in the way of implementing those approaches, and then look at some specific proposals that have come to mind as possibilities for Federal initiatives.

The broad nature of the problem you summarized, in your initial comments. I would have only one or two footnotes to add to that. One is that a very substantial part of the trash from households that we throw away is packaging waste; 30 percent by weight and 50 percent by volume is packaging waste. People from their households around the United States throw away about a ton per person a year, and this is a lot of material.

Senator BAUCUS. Say again, how much?

Mr. EDGREN. About a ton per person.

Senator BAUCUS. A ton a person a year?

Mr. EDGREN. Yes.

A big hunk of the problem is packaging waste. Other things that are included, of course, include organic materials, leaves and yard waste, and food materials, and consumer goods that are spent and disposed of when people are done with them.

This is obviously a very serious problem: What do we do with our waste and trash; we are drowning in it, essentially, how do we solve this problem? You mentioned several broad approaches. One I would like to add has been mentioned a couple of times here so far, and that is the possibility of reducing the volume of the waste stream. An Oregon law, the Recycling Opportunity Act of 1986, lists approaches in order of priority, and that is the first priority, and I think that it ought to be the first priority. If we can generate less trash, then we are well on our way toward making some dent in this problem.

If we can't reduce the volume of trash, then recycling things out of it is the second desirable option, and we should certainly pursue that as an approach. Composting is part of that. You can compost organics. Municipalities and localities can set up those kinds of programs. Ann Arbor does it. They separate leaves out, collect them separately, and compost them.

Toxics in municipal solid waste are another problem that you mentioned; and that, too, can be treated with the recycling option. Source separation and then recycling is the only way that I know of to get that stuff out.

It seems to me that those two options should be the focus—source separation with recycling, and waste reduction—of a national program to deal with the waste problem.

The principle problem faced in implementing these broad strategies, we have heard it mentioned a couple of times and I don't doubt that we will hear it mentioned again, is markets for the materials.

They command a very low price in the market as a rule. Some of them are quite valuable, but broadly a good deal of that material does not command a very high price. So if you collect it and sell it, you don't generate very much revenue. You can make a profit if you limit yourself to doing those things that bring a high price, high quality paper and things of that kind. But if you include things like tin cans, for example, you can't. The Ecology Center collects those and, I believe, it costs more to ship tin cans to the reprocessing plant than they were worth when they get there. So we have to subsidize that operation somewhat. We collect them anyway, because we think that it is environmentally sound, but it does require some dedication to do it.

We are likely to see a very substantial expansion in the supply of recyclable materials. As communities and States move to solve this waste problem, everyone looks to recycling as a possibility, and you have a lot of local initiatives. As that supply expands, what is going to happen?

One thing about the market for recycled materials is that demand and supply are what economists would call price inelastic. They do not respond to price incentives very well. If you increase the supply very substantially against an inelastic demand, what will happen is that you will drive the price of the material down to very low levels so that it becomes less and less feasible for local organizations to recycle.

We have to be very careful with programs that work to expand supply without paying attention to the demand side. What we need to do is stimulate demand for these products to make a dent in the problem of increasing the volume of recycling.

So what kind of specific suggestions do we have that will move to accomplish some of these results?

Senator BAUCUS. I am going to have to ask you to summarize as best you can, Mr. Edgren.

Mr. EDGREN. I will be very quick.

One thing is to make people pay the full cost of disposal. The second possibility is to have a national bottle bill, that would do a lot to help the problem. Government purchase has been mentioned, and that is an important and desirable option. A system of excise taxes imposed on packaging materials, particularly in proportion to the volume of virgin materials that is included in them, would warp demand away from virgin materials toward recycled materials and stimulate demand.

Those options I have covered more fully in my prepared statement. Those, with some others that I have mentioned, would be useful initiatives. The States can't do a lot of that. The Federal government is the only one that is in a position to really affect those markets effectively.

Thank you.

Senator BAUCUS. Thank you, Mr. Edgren.

Mr. Liss.

## STATEMENT OF GARY LISS, SOLID WASTE PROGRAM MANAGER, SAN JOSE, CA

Mr. LISS. Mr. Chairman and members of the committee, I appreciate the opportunity to speak here today.

I highlight in my testimony the success that San Jose has had in its solid waste program over the last 4 years, particularly saving $65 million over the next 30 years through our competition in collection and disposal agreements.

We sited our first major landfill in California since 1978 in San Jose. We have a 30-year disposal agreement to provide our long-term disposal needs for the City of Jose with BFI. We now have the largest curbside recycling program in the United States, picking up newspapers, bottles and cans from every home in San Jose by Thanksgiving.

Yesterday, we had a news conference to declare ourselves the largest in the nation. There are many charts in our testimony that we have submitted that highlight the participation rates and current tonnage and prices for the materials recovered.

We also have adopted a $25 million 6-year waste reduction strategy that is designed to reduce our waste stream by 25 percent by 1990, particularly through the three major efforts of curbside recycling, composting of the yard wastes and compostible materials, and commercial recycling, which is another major component of the waste stream.

In San Jose, our successes are built on twin tools of regulation through changing our contracts, permits and rate structures, and through competition, both in the garbage collection and disposal area, and in the recycling arena.

The city government in California is responsible for governing the whole solid waste system, and it is uniquely in a position to have a major change in the solid waste system as we have done in San Jose. I have highlighted this in my written testimony.

Another key factor in San Jose's successes was viewing recycling as economic if it is less costly than collection and disposal costs. The Recycling Opportunity Act mentioned earlier, adopted in 1984, defined that as well, that if recycling is less costly than the collection and disposal costs, then it is by definition economic, and it is not made to compete with other economic equations of the past where "recycling had to make it on its own," while garbage collection and disposal cost $50 or $75 a ton.

The key problem that everyone has highlighted here is clear—markets are the key role that the Federal Government could and should play in helping to solve the solid waste problem in the country. Local and State governments are working well to implement regulations and programs at the local level, but as these come on line, there had better be markets or we are going to have a serious, serious problem.

Local governments are now choosing to recycle because it makes sense economically for them. So the materials will be there, and as Joan Edwards from New York City indicated in the National Recycling Congress last year in Seattle, the industry must change and must adapt to these new realities of the marketplace.

Recycling is no longer the epitome of free market economics, it is the confluence of the free market recycling and garbage, which is essentially a regulated public utility. Unless the recycling industry is expanded to accept the materials that are collected from the garbage collection system, we are going to have a major crisis on our hands in the recycling arena.

The Federal Government can play a major role in changing this whole policy through tax incentives such as those mentioned by previous testimony here, and as highlighted in my testimony, and through market development activities such as the procurement regulations, which have been sadly implemented by EPA, hopefully are now coming out in final form after over a decade of intransigence by the Federal Government.

Economic development activities could also be pursued by the Department of Commerce, targeting the recycling industries as industries for reindustrializing America. If you look at mini-mills using and purchasing the recycled materials as a major raw material resource for those mills, at the same time that they are trying to rebuild the urban areas of our cities through economic development activities, you have a tremendous tool that the Federal Government has investing millions of dollars in and by targeting the recycling industries for economic development assistance through the Department of Commerce, HUD and other similar economic development activities, you could have a major impact.

The design for recyclability alluded to earlier in packaging by yourself in your testimony at the outset, and other testimony here today, is clearly part of the overall equation. All this is embodied in a national recycling policy which I included in my testimony in reduced form. We have lots of brochures about it. But this policy has been developed by the National Recycling Coalition to provide a guideline for Congress to move initiatives forward in the recycling arena.

We urge you to adopt this national recycling policy by Joint Resolution of Congress to establish a framework for analysis by the Federal Administration in a wide area of recycling activities. In this way the Federal Government could harness both the tools of regulation and competition that we use in San Jose to encourage recycling.

One thing that we wanted to note is that recycling has been an invisible investment. Many of you understand the hundreds of millions of dollars that are invested by waste energy vendors in cities, in building waste energy projects. Those same hundreds of millions of dollars have been invested in recycling, except invisibly to the public sector, because it has all been done by the private sector.

Each glass mill, each steel mill, each major processing facility costs hundreds of millions of dollars in the recycling industry, but it is done on a private basis, with no guarantees of the flow of the materials coming into those facilities, unlike waste energy, which has guaranteed waste flow control coming into it.

So we need to put recycling and waste energy on a comparable basis in the future, and the Federal policies and programs need to reflect that and account for that. EPA regulations need to encourage recycling in landfill regulations. They should encourage, at landfills and transfer stations, the adoption of recycling activities like we have done in San Jose in our contracts for disposal agreements and our permits.

The air pollution regulations governing waste energy should encourage recycling because it has been proven that recycling reduces emissions. So air emissions standards should include recycling as mitigation for waste energy emissions.

In competition, you should allow recycled materials to compete fairly by changing tax policy. We are subsidizing, through the Federal Government, virgin resource depletion in this country, and unless the tax policies in this country change, you are adding costs to every local government in the country because we pick up the burden of that by higher garbage disposal and collection fees.

In conclusion, I urge you to act to pursue a resolution in support of the national recycling policy and adoption of the National Recycling Policy. We will be holding, through the National Recycling Coalition, the next National Recycling Congress in Austin in two weeks.

We would welcome your support in any form, letter, resolution, or whatever, to commend the leadership of the nation that is actively pursuing recycling around the country, and we would welcome getting the Federal Government back into the game of technology and information transfer to help people so that New Hampshire is not the only one that people could go to for help.

Thank you.

Senator **Baucus**. Thank you, Mr. Liss, for that most enthusiastic testimony.

I notice that Senator Graham is here. Senator do you have a statement this morning?

Senator **Graham**. No, thank you, Mr. Chairman.

Senator **Baucus**. Our final witness on this panel is Mr. Greco.

## STATEMENT OF JAMES GRECO, DIVISIONAL VICE PRESIDENT, BROWNING-FERRIS INDUSTRIES

Mr. **Greco**. Thank you, Mr. Chairman and Senator Graham. I thank you for the opportunity of being invited to testify here.

For the record, my name is Jim Greco, and I am a vice president with Browning-Ferris Industries, responsible for government and industry affairs.

BFI is one of the Nation's leaders in the collection, transfer and disposal of solid waste. Eighty percent of our business is derived from the collection of solid waste (approximately 20 million tons a year). Eleven percent of our business is derived from disposal of that solid waste which we collect. BFI operates in 42 States, eight of the nine States represented by the members of this subcommittee.

Senator Graham, I will be brief. I will limit my remarks to less than five minutes. I have a few relevant points to make, and I would like my written testimony introduced into the record.

First, landfilling, waste-to-energy and recycling are all compatible, important approaches for an overall solid waste management strategy as we know it today and as we see it in the foreseeable future.

There is no dispute that landfilling is viewed with much concern and suspicion, both in this Congress and by the Federal Government (for example the U.S. EPA). We understand why many landfills have ended up on the Superfund list. Many more have not progressed beyond the open dump stage. Open dumps are clearly examples of the wrong way to dispose of solid waste in or upon the land.

To infer from all leaky landfills that landfilling is improper, we believe, is a mistake. Landfilling practices changed some years ago when liners became the standard practice, when hazardous wastes were prohibited from municipal solid waste landfills, and other modern environmentally sound landfilling operating techniques were implemented.

A recent EPA study found that a woefully small percentage of existing landfills are lined or have groundwater monitoring. In contrast, all of BFI-owned landfills are lined and 98 percent of our landfills implement groundwater monitoring. I say this not to blow our own horn, for surely BFI is not alone in this regard, but rather to point out to Congress that they need not engage in further refinements with landfilling to accomplish its objectives. Landfill owners and operators, intent on running secure landfills, have the wherewithall already to do so.

What is needed is an effort to see that existing state landfill requirements are enforced and are enforced uniformly against large and small, urban and rural, public and privately operated landfills.

My second point—We think that modern waste-to-energy facilities should be a permanent fixture in the mix of solid waste disposal options. Decades of experience with this technology in Europe and Japan, make clear that waste-to-energy facilities pose no real threat to the environment when managed properly, and they can take an increasing share of the waste that is now disposed of in landfills.

My third point—Recycling puts recyclers in the commodities marketplace. Recycling is on the increase for many reasons. We, in the waste services industry, very much support efforts across the country to recycle waste. Recycling activities, by and large, mean more business opportunities for private waste firms.

Part of the increased interest in recycling stems from the lack of available close-in disposal capacity, particularly in the northeast part of the country. When landfill rates approach and exceed $100 a ton, the avoided cost of landfilling and transportation to a permitted landfill site justifies economically sound extensive recycling.

BFI has had a significant stake in the recycling market. Our company started in 1969, and in the early 1970s, we made a major investment in a company called Consolidated Fibers. Consolidated Fibers was in the waste paper market recycling business.

Our first experiences were very positive. But then we found how cyclical the recycling commodities market was. We later spun off Consolidated Fibers because it didn't fit in with the stability and the growth strategies that we were pursuing.

State mandated targets for recycling today can be compatible with existing waste collection services, but BFI raises some questions about the marketability of the recovered products. I need not go into more detail now, because I think that this has been raised by every member of this panel.

I would like to raise one final point. Solid waste disposal capacity is diminishing in large part due to barriers to the siting and permitting of new disposal facilities, and to barriers to the movement of waste across state and county lines.

While we believe that solid waste management issues should be handled at the state level as a rule, we feel Congress should follow what the states are doing and, perhaps, firm up the Supreme Court's ruling that state barriers represent an unconstitutional intrusion on the interstate commerce in the movement of solid waste.

I am pleased to have the opportunity to testify and welcome responding to any questions or comments. We look forward to working with the members of the subcommittee and the staff in the months ahead.

Thank you, Senator.

Senator GRAHAM. Senator Reid.

Senator REID. I can remember as a young boy, I was raised in a rural mining town in Nevada, and there were periods of time when there were people that came, we called them "Junkmen." They would come in the middle of the night, and they would steal things. They would take things. Old mines that were inoperative, they would take pieces of metal that were around. They would blow up hoists, and they would do all kinds of things like that.

They would only do it when the prices were high for scrap metal. When the prices were low, no one bothered to pick up that junk. The same problem exists in what we are trying to do here, what you have done, that is recycling materials.

At a hearing that we had a few weeks ago, the problem was that you have to recycle everything at once. You have to gather everything at once, because if you collect paper, for example, just like the example I gave, when the price is high, it is easier to get rid of it. You can get everybody to gather their paper. When the price of scrap metal is high, people are happy to dispose of that, but when the prices are low for aluminum cans, for example, it is hard to get people to collect those.

We, in Nevada, have a problem that is similar to, I would think, New Hampshire, but probably even a little more magnified in that we don't have a market nearby to dispose of all these things. A city like Las Vegas or Reno lies hundreds of miles away from a major market and recycling centers.

What can be done to encourage the recycling of materials in areas like Nevada, in rural areas or even metropolitan areas that rely on long-range transportation of these wastes?

Could I have a number of you respond to that question?

Mr. **Liss**. I would like to address a couple of the points you made. One, on the Nevada area, I would encourage your people to look into back hauls. There are lots of products being shipped into Nevada from lots of places. In fact, those people that ship in can ship out.

Senator **Reid**. They go out empty?

Mr. **Liss**. Exactly. A lot of the rural landfills do recycling by capitalizing on that very fact. You need to have industries that are shipping in connect with those who are dealing with recycling and garbage as another thing.

Another piece of it, in San Jose, our contract for curbside recycling has a market clause in it where we have established a fixed number that is based on the volume of tons resulting from a number of people participating and the average market price that we expect. If that dollar value of $1.4 million is exceeded, the contractor and the city split the revenues in excess of that $1.4 million 50/50. If the revenues go below that, we also split the loss.

I believe that in the future, you will see more and more cities absorbing the market risk in that way because otherwise that material is going to go to landfill anyway, and they are going to absorb the cost of collecting and disposing of it anyway. So as long as you are still getting some revenue from the sale of the materials, you are still ahead, and the recycling system is a less costly system to run than the garbage system.

Our contract, for example, we believe that our garbage collection and disposal system will be $50 per ton in 1992, whereas our overall recycling system will be $30 a ton. So there is economies there.

The two answers are back hauls and the cities picking up some of the risk on the market side.

Ms. **Moore**. Being from a rural area, we have the problem of having to ship our wastes a long way, and the way that we can justify it is through cost avoidance. I don't know if you are having a problem siting landfills in Nevada or not, but in the northeast, it is impossible.

Our landfill costs are now in excess of $100 per ton, including the transportation. So that gives us a lot of chance to recycle. Even if we spend $40 or $50 a ton to recycle materials, we end up winning.

The municipal government is the one that is paying for this. They are willing to pay to recycle as long as they are paying less than if they had to dispose of it. So it is important to understand cost avoidance.

The only way that we are going to get really aggressive recycling going, where we can capture large quantities of the waste stream, is for the towns, cities, and municipalities to fund recycling. It can't be something like we looked at in the past as something that had to make money. All we have to do is lose less by recycling than if we had to dispose of the material.

Mr. **Edgren**. Another possibility in this sort of area has to do with the charges for disposal. If I put another bag of trash out by the curb, it doesn't cost me anything personally, but it costs the city something. I have to pay that in taxes eventually, perhaps, but I don't realize the implication when I put it out there because I don't have to pay a price for it.

You can institute systems that confront people with the true cost of their disposal. If you charge them an amount that reflects what it really costs to dispose of things, this will have the effect of reducing the volume of waste, which would go some way toward solving your problem. It will also generate funds and make it more feasible to haul things, ship things, or deal with them in other kinds of ways.

A waste disposal charge that truly reflects the costs that wastes involve, including all the external costs, would be a useful initiative in many areas, I think.

Ms. **Moore**. Gary Liss just handed me a piece of paper that has a very important point on it. In New Hampshire, I am president of the New Hampshire Resource Recovery Association, which is a non-profit organization. It is a group of municipalities that have joined together, and we market our materials cooperatively. If Wilton had to go to the paper industry and tell them, we produce 200 tons of newspaper every year, they would be willing to take our paper when the price was up. When the price was low, we would be on our own.

We grouped together cooperatively statewide and we are able to command more on the marketplace. We have contracts that guarantee timely pick up and payment for materials, because we have grouped all of New Hampshire's waste material together, and we are able to promote recycling on statewide basis and promote markets on a statewide basis. I think that cooperative marketing is essential to the success of recycling, especially in rural areas.

Ms. **Nord**. I would like to add to her testimony. We, as a private recycler, have worked with our non-profit organizations, and we have the same problem. We are out in the middle of the prairie, we have no export markets, so we are talking a long haul.

What we did, we went to our beer distributors and we said: Look, guys, you haul an awful lot of it into central Illinois, I think it is only fair that we haul a little bit back to your bottling plants and your mills. After we raised enough ruckus between the private and the public sector, we got their attention.

Here again, with market fluctuation, you have to be creative, and you can't be afraid to ask for what you want. One of our problems was, a couple of years ago, we had news coming out of our ears, and we had it stored in warehouses all over town. So we had to go back to the news brokers and say: Okay, fine, maybe we won't take the highest dollar in the high market, we will take a little bit less, which is going to help them and help us, but we want guaranteed movement in a low market.

We established ceilings of volume to which we could move materials. So far it has worked beautifully, and we renegotiate these contracts on an annual basis, so if we have a large volume, regardless of market, we can move the materials.

Mr. **Greco**. Senator, BFI doesn't operate in Nevada, so I can't speak about the situation in Nevada. But there are two points that I want to make in response to your question.

One, I think, in our country, our primary objective should be to manage the garbage so that it doesn't present a problem to the public health or the environment.

Secondly, but also important is the recognition for a "conservation ethic" where we try to recycle and reuse more of that material. If the operations in Nevada are well done and done efficiently, and the market doesn't allow recycling, there is not an immediate need or opportunity for recycling as in other parts of the country.

My second point is meant to say that one should not diminish the intent to try to recycle. To be more specific, I think the point made early in this hearing by Ms. Nord with respect to government procurement specifications, whether it is in paper fibers, or whether it is in road aggregate, asphalt, or some kind of aggregate for roadbuilding, those materials lend themselves for recyling, if the demand is created there by a purchaser, government or industry, and the specifications are written to allow that, that would definitely enhance recycling because it produces a real market.

Mr. Liss. If I could take off on a point that Jim made and Rebecca made on the government purchase in the Nevada area, one of the key parts of the solid waste stream is yard waste, organic material which can be composted. When you compost that, it can be used for soil conditioner and beautification efforts. In the dry climate of Nevada that will help conserve water, which is a very scarce and valuable resource in Nevada.

All of these issues are interrelated. If you do your composting to reduce your solid waste stream, you can actually help on water problems and beautify the city. In fact, weed abatement and other things could be another byproduct of that.

Another point Rebecca made about talking to the beer distributors reemphasizes the back haul idea that I was suggesting. One of the things, when you get into recycling in-depth, you find out that there are a lot of resources out there that you are not sure why they are there. This is a perfect example.

A lot of the beer distributors and soft drink bottlers are against bottle bills. They don't want States to adopt bottle bills and, therefore, will do anything they can to make recycling work to avoid bottle bills. In the States that have the bottle bills, there have been other dynamics going, but Nevada doesn't have one and, therefore, that industry should respond very well, as Rebecca has indicated, to helping on the back hauls.

Senator Reid. Tell me where should the materials be separated for recycling?

Ms. Moore. It should definitely be done in the home, and there are a number of reasons for that.

Senator Reid. What incentive is there to do it at home?

Ms. Moore. There are a number of incentives. There are some programs that are positive, I think, with incentive, and not a negative, shake the finger, if you don't do it right, we are going to fine you. I have seen some really clever programs.

There is a program in Illinois where they have a curbside collection program, and what they have done to encourage people to participate is they have something like a lottery. Every week, on garbage day, when you put out your garbage, they have super trashmen who come around, and pick a home arbitrarily, and look through their trash. If they have successfully removed all of their recyclables, they win $1,000. If they haven't, then the next week it is worth $2,000.

So the city is spending $52,000 to promote their recycling program, which is really not a large amount of money, and they are getting incredible participation rates. You know that if the people are participating, they are not only participating, but they are getting everything out, because if they leave one bottle in there, they are not going to win their $1,000. This is just one clever idea.

In Wilton, we use the incentive, because we are a drop-off facility, of the bookcases and the possibility of finding toys, books, appliances, clothing, and things like that. I think that positive incentives are what are needed. I am sure that people can think of other clever ones.

Mr. Liss. I would like to also say that it is preferable to have it segregated at the source, whether it is businesses or at the home. The cleaner you get it, the more value is attributable to it. If you think of it like eggs, if you mix your yolks and your white together in doing eggs, it is real hard to pull the pieces apart after you mix them altogether. Garbage is the same way. The pieces by themselves are much more easily segregated and command a higher value.

Recycling in high scale in cities like ours, where we are talking two to three thousand tons per day of material, we won't get it all out at the source and, therefore, mixed recycling at landfills and transfer stations is a very important part of the overall system. Marine County, California, has a wonderful commercial recycling venture where they take all the business waste that comes in in mixed form and hand sort it off conveyor belts. They have a very successful program going there.

As far as incentives, one of the interesting things that the EPA found in the studies that they did do in the 1970s on this issue, they found that the price was inelastic as far as its effect. If you change the price of garbage and have different rate structures, you won't have much of an impact on the homeowners because the price of garbage collection and disposal is so low. If it is $5.00, and if you recycle it is only $4.00, that one dollar saving is not going to get people to recycle.

So it is more the environmental issues that generally get people recycle. Time and time again, studies around the country have shown that people do it for the environment, particularly in communities like ours, where toxics issues are very hot in the Silicon Valley, and the environment awareness is very high and there we are seeing 80 to 90 percent of the people participating and they are doing it because it is one thing that they can do to protect the environment, which is the same message that came out on Earth Day in 1970.

Senator Reid. One question, and then I will relinquish my time.

I heard recently that McDonalds, or one of the major fast food chains, indicated they were going to start packaging their food in a different type of container, one that is disposable, rather than the plastic.

What do we do to dispose of the toxics? What do you do with them in your various programs that you have? There are all kinds of things that we don't realize that are dangerous that we dispose of on a daily basis. One of the reasons that these landfills have become such a problem is because of the toxics that are in the landfills.

Ms. **Moore**. I think, McDonalds, what they have done is that they are no longer using styrofoam that is made with chlorofluorocarbons. They are still using plastic, they have just stopped using chlorofluorocarbons in the process to make styrofoam. I don't know how they are doing it now. I would like to find out more about that myself.

To address the toxic issue, what we do in Wilton is, we have, once a year, a household hazardous waste collection day. The State of New Hampshire provides seed grants for these. They provide a little bit of money to encourage the towns to set aside money. They are very expensive.

The main thing that it does is to educate the public that you can go to your supermarket and buy things that are very toxic. A lot of people don't realize that these materials are dangerous, and it isn't until we educate the public, that these materials are dangerous, that people are going to consider using different materials.

There are a lot of non-hazardous products to do the same thing that a hazardous product will do, and the only way that people are going to stop using those is to let them know that this is what is causing the problem.

We have been successful with these collection days, but there is only a small percentage of the population that is dedicated enough to save all of their toxic wastes for an entire year and bring them down. It gives us an answer, when people ask us what to do with it, but I don't think that it is particularly convenient, and I don't think that it is as successful as it could be if we had more of these collection days.

Mr. **Edgren**. Some components of the household waste stream can be recycled, the toxic components. Motor oil and antifreeze, the Ecology Center in Ann Arbor picks those up on a curbside basis. Some small part of it, you can source separate and recycle.

Household collection days, as was mentioned here, are the only other alternative that I have really heard about. You source separate the stuff, have people keep it out of their trash, and then collect it independently and dispose of it in as safe a manner as you can. I don't know that there is any very safe method of getting rid of the stuff. Even if you collect it properly, you still have a real problem of what to do with it.

If you are going to have household collection days, they are very expensive to operate. You should do it frequently. You should do it consistently. It takes money to do that. Where does the money come from? These things have been funded locally. The Washtenaw County Health Department and the Ecology Center got together and in part used private funding to do this.

It seems to me that you should have some regular source of funding. Perhaps an excise tax on the kinds of materials that create these problems would be an appropriate way to raise funds to establish household collection centers. It would have a double effect in that it would provide some funds to do it, and it would also tell people a little more clearly what the real costs are of things that they buy. If you buy things that are very toxic and very hard to dispose of, that disposal cost ought to be included in the price of the product.

Senator **Reid**. Thank you.

Senator **Graham**. Thank you, Senator.

Senator Chafee has asked for this question to be asked. Can any member of the panel respond as to whether he or she believes having a deposit system for plastic soda bottles and milk jugs would be wise public policy, or is the voluntary collection of plastic sufficient?

Ms. **Moore**. We do collect milk jugs and soda bottles in Wilton. It is one of the products that we recycle.

Senator **Reid**. Pardon me. Can they be reused?

Ms. **Moore**. Yes. Our milk jugs are made into a sewer pipe or black pipe, and the soda bottles are cleaned and sold, and are made into fiberfill for ski jackets.

Plastic is one of the more recyclable things, but there are a number of problems with plastics. The problem is identifying them. Milk jugs are made of high density polyethylene, which is commonly known as HDPE. There is a lot more HDPE in the municipal waste stream than just milk jugs—detergent bottles, some shampoo bottles, any number of them. But we are not able to capture that portion of the waste because if we started throwing all sorts of different colored plastics together, people wouldn't know that this is high density. There are all sorts of different kinds of plastics

One of the things that I mention in my testimony is that if there was a way for the consumer to identify what that plastic was made out of, then it would be easier for them to know if it was recyclable and which category to put it in. I don't know how you would want to do it on a curbside program, where you have the comingled recyclables, but in a drop-off program like ours, we need the public to be able to recognize what the different materials are.

There are some strides with mixed plastics being produced, but I am not familiar with it. Probably the plastics industry could tell you more about that.

Mr. **Edgren**. I believe that the New York State bottle bill includes a deposit for plastic bottles. I have read that two-thirds of the bottles collected because of that refund system had to be landfilled, because there wasn't any market for the stuff once they collected it.

Identifying the plastics is a real problem. for the most part you can't mingle them together and recycle them. However, there are some new initiatives. As you mentioned, there is a new company that has just opened in Michigan that The Ecology Center may be sending some plastics to, that takes a broad range of plastics and makes a plastic lumber out of it. Whether that will work or not, I don't know. This company got started with a grant from the State of Michigan under the Clean Michigan Fund, so, again, there is a government subsidy involved to get this going.

I talked with a person in the Michigan Department of Natural Resources there, who says that there is a Great Lakes State initiative, a legislative initiative, to try to deal with this labeling problem.

The Great Lakes States, (Indiana, Illinois, Ohio, Michigan, Wisconsin, New York, and Pennsylvania,) are simultaneously introducing legislation to require plastic containers to have a two or three-letter code on the bottom that will identify in broad categories what type of plastic it is, high density, low density, and so on. Those are being initiated in the current legislative sessions. Whether they will pass or not, or what will happen with them, I don't know, but there are initiatives to try to deal with some of that problem.

Senator **GRAHAM**. Thank you, Mr. Chairman.

Senator **BAUCUS**. I want to apologize for some of my absence. Ambassador Yeutter, the U.S. Trade Representative, and Ambassador Peter Murphy, who is negotiating an agreement between the United States and Canada, or attempting to negotiate an agreement between the United States and Canada, are now briefing members of the Senate Finance Committee on the terms of that agreement.

The deadline date for submission of an agreement by the President, if there is one, is midnight Saturday, so we are getting down to the final days. I apologize to the witnesses and to the committee for my temporary absence. I must say that we are only now beginning to be briefed, and I will have to find out later what is in it.

Mr. **LISS**. Senator, I would like to point out that I believe about two-thirds of our newsprint is shipped in from Canada, and our balance of trade deficit is hurt by that.

Senator **BAUCUS**. That is correct, and I was thinking of that earlier this morning when it dawned on me that perhaps the more we could recycle some of the paper in this country, the less we would have to rely upon Canada for newsprint.

Senator **GRAHAM**. You are not suggesting censorship of the press as a means of reducing the trade deficit.

Mr. **LISS**. No, buy American.

Senator **BAUCUS**. Perhaps this has been asked. One of the questions I have is the appropriate Federal role to encourage more recycling, more reuse, more minimization. You have already touched on some of that with tax incentives and procurement policies. Mr. Edgren mentioned the national bottle bill. I think that it is in Michigan where the disposer has to pay, or in some areas.

Mr. **EDGREN**. I don't quite understand.

Senator **BAUCUS**. Someone had suggested that the disposer of the trash has to figure out some way to pay for it.

What is the first step or two that any of you think that we should take, among several that you have suggested? The first step or two that the Federal Government should take in trying to encourage a sound, rational, responsible recycling, reuse and minimization? What comes to mind?

Mr **LISS**. The national recycling policy needs to be adopted as soon as possible. This is merely a statement of the types of things that should be explored by the various parts of the Federal agencies and is the beginning of developing a national recycling policy. It is not the end of that.

Senator **BAUCUS**. What is the key feature of that policy?

Ms. **MOORE**. The leadership, I think, is the key feature. The Federal Government has to take a leadership role. It is very important that they be the ones that lead the way.

Senator BAUCUS. What should the one or two major specific components of that leadership role?

Mr. LISS. The tax policies, looking at investment tax credits, tax incentives for new applications of waste materials, purchase or secondary use tax incentives, things of that nature, and some of the economic development tools like UDAG grants and Department of Commerce activities focusing on recycling industries.

Again, the market development and tax policy are the key aspects that the National Recycling Policy is calling for to impact the economics of the system. Beyond the economics, probably the next most important thing is the information transfer.

EPA, up until 1980, performed a very useful role in getting information out about the state-of-the-art in what was going on in the solid waste area, particularly in waste energy and landfills. It was just beginning to track recycling. In 1978, it did a nationwide survey of curbside recycling, but that was the last time that they did that. There is no data base now, since 1980, about what is going on nationally because there is no mechanism for tracking that.

Senator BAUCUS. We are going to have EPA at a subsequent hearing. What are the one, two, or three points or questions any of you might like to put to them if you had the opportunity?

Mr. GRECO. This response will be responsive to both this question and to the prior one. I really feel that there should be a congressionally defined role that EPA look more carefully at state inspection and enforcement programs of disposal locations.

I think what we see enhancing recycling, predominantly in the northeast more so, but what we see is the rising cost of the true disposal of disposing of garbage, primarily landfill, because that is what we have been dependent upon and we are in the near future.

There is much concern about the barge and the barriers to the movements of waste. Waste knows no boundaries in many ways because it has to go where there is environmentally sound land, hydrogeology permittable land. You can't put waste sites where there are population centers, because there is no room. There is going to have to be the crossing of county lines, of state lines in many situations so that waste is properly disposed.

What I want to get at is, we find that there is unequal, non-uniform enforcement of solid waste management disposal among publicly versus privately, large and small, rural and urban disposal sites, and if the intent is to protect the environment and to get the true cost of disposal, there should be more oversight on how states are enforcing and inspecting existing statutes and regulations for solid waste disposal. I think that that question should be put to the agency.

Senator BAUCUS. Why isn't there more consistent oversight of state disposal regulations?

Mr. GRECO. That is right.

Senator BAUCUS. Do you think that the main States should be a little more stringent in their landfill disposal or various kinds of disposal policies?

Mr. GRECO. I think that many States have stringent policies, but they are not fully enforced. They are not fully inspected, and they are not fully complied with.

Senator **Baucus**. Why do you think that they are not fully enforced; what is happening?

Mr. **Greco**. Funding problems, staffing problems, political problems. It is a very sensitive area, I realize, but there are parts of the country where you might have a public and private landfill, side by side, where there might not be any cost of disposal at that public landfill, you just drive the truck in and dump, but the private landfill is complying and is inspected. I characterize that as more of a local political problem, which is a very sensitive problem.

Senator **Baucus**. Let me ask a provocative question here, and it goes to the economic alternatives.

One can argue, as some of you have, that there should be, perhaps, government incentives to encourage more demand for recycled materials. On the other hand, someone can argue that you let that demand create itself, that is, when the cost of landfilling or incineration become so expensive, let the market work its will and the recyclable alternatives will then become more economically attractive.

What is wrong with that argument?

Ms. **Moore**. When you have expensive disposal costs, it does encourage the collection of recyclables, but there is no guarantee that there is going to be a way to get rid of those recyclables. It has to be a closed loop. You just can't collect it, or you end up with pretty garbage. You have to have a market for that material.

Mr. **Liss**. It is actually the demand for the next step beyond the user of the recycled material, the purchaser of that product, like the newspaper publishers needing to purchase more recycled newsprint.

Senator **Baucus**. To follow up on that point, why not wait for Canadian newsprint to be so expensive, or why not wait for aluminum or bauxite to get so expensive?

Mr. **Liss**. Because we have the garbage problem now.

Senator **Baucus**. Why should there be some kind of incentive which is, in effect, a subsidy, the government temporarily providing help?

Mr. **Liss**. Assuming that the private enterprise system is working perfectly and, therefore, the marketplace of supply and demand will meet the needs, as you are suggesting, would be nice to assume, but as I mentioned in my testimony, the solid waste arena is the confluence of a publicly regulated utility, where rates are set by government, independent of the cost, in many instances, of those operations.

The rates are set by government for the services at whatever rate they need in order to properly dispose of that material that is picked up. It is that economy impact which is intruding into the private marketplace of recycling. Unless the government also looks to expand the markets, we are hurting those who have been helping us in recycling all along. We are hurting those industries who are recycling unless we help them to also expand the demand for their products.

Mr. **Edgren**. There have also been, historically, incentives given to the use of virgin materials over recycled materials, so that the government has actively worked in the other way. There has developed, I think, a kind of a prejudice against recycled materials. If you give someone a piece of paper and say, "Is this recycled paper or not?" Nobody can tell, but people don't buy it because they associate something with that idea of using recycled materials, which is really inappropriate.

There are biases in the marketplace that need to be overcome through an active government involvement. Government purchase would be an immediate thing that could be done that would not require much legislation. EPA was supposed to have done, why didn't they do it? That is a question for EPA.

Senator BAUCUS. Is recycled paper more expensive than nonrecycled?

Mr. EDGREN. It is, but mostly because it is done in such small volumes.

Senator BAUCUS. How much more expensive is it?

Mr. LISS. It is not always more expensive. In fact, in Maryland, it has been less. They have saved money in the State of Maryland's purchasing program, which is a model for the nation in procurement.

Mr. EDGREN. If you have a large enough volume, you can produce it cheaply. If you buy in small volumes, it is like many things, there are economies of scale in the production process.

Mr. LISS. A lot of it has to do with the specifications, getting into the details of how these things work, the brightness factor, the opacity, and all those types of issues. We have put in a lot of requirements, things that preclude recycling from competing, but they are not needed to do the job, and that is part of the problem.

We need to really go back and look at our procurement standards for all of our products. For asphalt, we put glass and rubber in asphalt. For concrete, use recycled aggregate, and all those types of things.

Senator BAUCUS. I wish we had more time, because this is all very interesting.

I am going to place in the record your National Policy on Recycling brochure. (See p. 235.) I think that a lot of the points come together here. I, frankly, think that our country for too long has been living on borrowed time economically. Our budget deficit, the trade deficit, we are a net debtor nation to a fairly large degree, which is the first time in our history since 1917 or 1918.

I think that it is almost in the same vein, I think, a garbage debt, we could afford the luxury, as a big country, to dump the stuff, and to some degree now the chickens are coming home to roost, both economically and environmentally. I think the solution is in the nature of our pulling ourselves up by our own bootstraps and find a solution.

We have to find a joint solution to the problem, working together. I strongly suspect that minimization, reuse, recycling are all part of this national, cultural, ethic that this country is going to have to work toward very quickly if we are going to solve a lot of its problem now identified.

I very much thank you for your testimony. Obviously, we have further to go, but I encourage you to help all of us out, to do the best you can with the organizations that you belong to, to propose some fairly specific Federal legislation.

It is going to be difficult to reenact ITC for a couple of years. Investment tax credit, as you know, was killed, in part, to allow corporate and individual rate reductions in the 1986 Tax Code. I don't know how much the taxpayers are going to see of the lower rate when they are paying taxes next year, at least that was the offset.

I think that the Congress is unlikely to go back and reinstate investment tax credit, generally, this year. I suspect, however, that in the following year, the new Administration, whoever is elected president, will address a lot of these matters, both economic as well as environmental problems, that will be an opportunity for some of these changes.

In the meantime, though, there is an opportunity to discuss them and perhaps introduce legislation to provoke public discussion on all this. I am a firm believer in John Lock, and the marketplace of ideas where people can discuss all of this, and pretty soon the truth is going to emerge and we will get to the heart of the matter more quickly.

I want to thank you all very much. Again, I apologize for my absence during part of the hearing. Thank you very much.

Ms. **Nord**. Thank you.

Senator **Baucus**. Our next panel will consist of Hank A. Schlieper of ASARCO; Mr. Cavaney of the American Paper Institute; Ms. Irene Schmidt of ALCOA Recycling Company; Mr. Lewis Freeman from the Society of Plastics Industry, and Mr. Michael Sappington of the Secondary Lead Smelters Association.

Mr. Schlieper, why don't you begin.

## STATEMENT OF HANK A. SCHLIEPER, ASARCO, INC.

Mr. **Schlieper**. Good morning. My name is Hank Schlieper. I am assistant to the executive vice president of ASARCO, Incorported. On behalf of the company, I appreciate the invitation to appear and present our comments on today's topic: How to encourage recycling and materials recovery as alternatives to land disposal of hazardous waste.

I want to depart for a moment from my prepared text and indicate the great similarity between the municipal waste problem that was discussed earlier this morning and the problem of metals reclamation from hazardous waste. I found the discussion very enlightening. I appreciate the opportunity to present our views this morning.

I also want to thank and congratulate Senator Baucus and the subcommittee for calling this important hearing. Before RCRA is reauthorized, it is vital for the Congress to focus on the necessity for enhanced incentives and the removal of disincentives for recycling and materials recovery from hazardous wastes.

Although the primary purpose of RCRA is to protect public health and the environment, another important purpose is to foster resource conservation and recovery. Squandering important natural resources instead of returning useful products to society makes little economic or environmental sense, and increases dependence on foreign sources for strategic and important materials. How reclamation can be fostered is therefore a very topical issue.

ASARCO is one of the world's largest producers of non-ferrous metals and minerals. The company operates through a system of wholly-owned facilities and facilities owned by associated companies. These facilities engage in a range of activities, including mining, milling, smelting, refining, and otherwise processing ores, concentrates and other metal-bearing intermediate materials. The company's processes are designed to separate various constituents and to concentrate and recover economically valuable metals, metallic compounds, and mineral resources.

ASARCO supports recycling and materials recovery. Primary non-ferrous smelters can be unique resources for the management of metal-bearing hazardous wastes. ASARCO strongly supports recycling and materials recovery as an important component of the Nation's hazardous waste management system.

We recognize that waste minimization is the most beneficial technique when it is feasible. We see treatment methods, including materials reclamation, as the next best alternative. Finally, in situations where neither of these options is feasible or available, containment and permanent storage must be used.

Within this framework, ASARCO believes that primary non-ferrous smelters represent an important part of the solution to the Nation's hazardous waste management problems, particularly that portion of the problem which relates to predominantly metal-bearing wastes.

Smelters and other metallurgical processes are the only types of technology presently available to recover useful metals from metal-bearing wastes. Incineration does not promote conservation of materials resources.

ASARCO has no quarrel with the use of incineration for the destruction of hazardous constituents in predominantly organic wastes. However, incineration is neither designed nor effective for the purpose of reclamation and recovery of inorganic materials. In this regard, non-ferrous smelter technology represents a unique resource for the management of metal-bearing wastes.

Another very important potential advantage of using primary non-ferrous smelters for metal reclamation from predominantly metal-bearing wastes is that these facilities have already been built and are operating, some for as long as 100 years. They do not confront the so-called "NIMBY" problem, which makes siting of new hazardous waste management facilities so difficult.

In addition, the non-ferrous metals industry has excess capacity, some of which is on a standby basis. This excess domestic capacity has resulted from a protracted downturn in the metals market and from the marked increase in foreign metal imports in the past few years.

Unfortunately, current regulatory proposals and RCRA requirements create unintended disincentives to smelters' willingness to take metal bearing listed hazardous wastes for metals recovery purposes. Thus, in this respect, these proposals and requirements undercut the very objectives they seek to achieve.

Despite the unique contribution that primary non-ferrous smelters could make to solving the Nation's hazardous waste problems, this potential seems unlikely to be realized at present. This is so for a variety of reasons.

For example, a recently proposed rule from EPA would serve as a disincentive to smelters' willingness to take metal-bearing wastes for materials recovery purposes. In the EPA's proposed rulemaking, entitled, "Burning of Hazardous Waste in Boilers and Industrial Furnaces," published in the Federal Register on May 6 of this year, the agency proposed to include smelters within the scope of these new regulations.

The resource conservation objectives of RCRA would be frustrated rather than furthered by applying the proposed rules to materials recovery at primary non-ferrous smelters. By doing so, the agency would create a powerful disincentive for the primary non-ferrous smelters to take any hazardous wastes as feedstock material.

Under the proposed rules, primary smelters handling listed hazardous wastes would become subject to subtitle C permit requirements, with the full range of consequences, such as double-liner requirements, corrective action at all solid waste management units, and so forth.

Application of the mixture rule would effectively convert the entire smelter complex into a hazardous waste treatment, storage and disposal facility once a listed hazardous waste had been processed for metals reclamation purposes. Frankly, even before these new rules were proposed, ASARCO determined that it would have to refrain from processing even quite valuable listed metal-bearing hazardous wastes because of RCRA's inflexible requirements.

If the currently pending burning and blending proposals become final without change, ASARCO's determination not to process listed metal-bearing wastes will become even more deeply entrenched. This deterrent effect on smelters inevitably results in land disposal of most of these wastes or their metallic residuals in contravention of RCRA's objectives.

The EPA and others argue, however, that comparable facilities, such as smelters and incinerators, should be equally treated under RCRA. They argue because incinerators, which burn listed hazardous wastes, must get subtitle C permits and comply with all subsection C requirement, primary non-ferrous smelters, which process hazardous wastes, should have to do the same.

ASARCO does not object to having smelters meet all level of pollution control for air and water emissions, which are necessary to protect health and environment when hazardous wastes are being processed, just as incinerators do, but ASARCO does disagree with the assertion that smelters and incinerators are comparable in their environmental consequences, particularly with respect to the management of metal-bearing wastes.

Smelters and incinerators are not comparable in one key respect: Smelters recover metallic materials, incinerators do not. Metals contained in hazardous waste, which is incinerated, wind up in the fly ash or bottom ash residue and then get disposed on land.

In sum, smelters are preferable to incinerators to meet the RCRA objectives of protection of environment and health and resource conservation when predominantly metal-bearing wastes are involved. This preferred status needs to be considered in future regulation and legislative action so as to not discourage smelters from processing metal-bearing listed hazardous wastes.

Senator **Baucus**. Mr. Schlieper, I would ask you to sum up, if you can.

Mr. **Schlieper**. ASARCO is fully supportive of the need to exclude sham recycling of essentially organic listed hazardous wastes from any new policy to encourage reclamation of metal-bearing wastes. We believe the proposed rule attempts to accomplish this objective in an overly broad manner.

I am going to depart and say that we are currently engaged in discussions with the EPA in trying to outline a sensible way to utilize a very valuable resource, that is, the smelting industry, for the environmentally sound recovery of metal-bearing wastes.

I thank the Senator and the subcommittee for their time.

Senator **Baucus**. Thank you, Mr. Schlieper.

Mr. Cavaney, why don't you proceed?

## STATEMENT OF RED CAVANEY, PRESIDENT, AMERICAN PAPER INSTITUTE

Mr. **Cavaney**. My name is Red Cavaney, and I am president of the American Paper Institute, the national trade association of the pulp, paper, and paperboard industry. I am testifying today on behalf of our member companies.

Since World War II, the recycling segment of our industry has conducted a variety of programs designed to ensure that paper and paperboard mills have an adequate supply of good quality waste paper.

We have engaged in numerous efforts to promote products containing a recycled fiber content; to encourage recycling through the development of new techniques to improve waste paper collection, processing, transportation, and storage; and to work with policymakers at all levels of government on issues related to solid waste management and paper recycling.

The U.S. paper recycling industry has realized impressive growth these past few years. Between 1970 and 1986, waste paper collection increased from 12.5 million tons to over 22 million tons, an increase in collection of over 75 percent. Domestic consumption has grown from 12.1 million tons to 18 million tons, while waste paper exports increased tenfold, from 400,000 tons to almost four million tons. Impressive growth is also forecast to continue for the balance of this century in waste paper collection, consumption as well as exports.

Since 1970, we have also enjoyed a steady increase in our rate of waste paper collection. In 1986, for example, Americans consumed 80 million tons of paper and paperboard. We collected 22 million tons. In other words, of all the paper and paperboard consumed domestically last year, nearly 30 percent was recycled into new products. We expect that rate to be at the midthirties within a decade.

Waste paper for recycling is grouped into four basic categories: corrugated boxes, with a collection rate of 42 percent, contributed 10.2 million tons in 1986; high grades or white papers contributed 4.8 million tons last year; old newspapers, with a collection rate of 30 percent, contributed 4 million tons; and, finally, mixed papers contributed 2.7 million tons in 1986.

The impressive growth in paper recycling is attributable largely to market forces and the efficient, interdependent network of collectors, suppliers, and producers that has developed over the years. This network currently includes 2,000 waste paper dealers and brokers, 600 more than were in business in 1970.

Through this system, the supply of recyclable paper has largely become a function of demand both foreign and domestic. This has led to the efficient and economic allocation of recyclable paper in the marketplace.

In addition to recycling, we see three additional options for policymakers to consider in trying to best the solid waste management challenge: waste reduction, waste energy, and landfilling.

In brief, it is our industry's view that an integrated program of maximum materials recycling, expanded use of waste energy technology, and environmentally sound landfilling offer the single best hope for effectively managing the municipal solid waste challenge.

What can government do to help?

In paper recycling, continued economic growth and expansion, both foreign and domestic again, is absolutely vital. The government can also help by ensuring that the changing economies of recycling versus disposal, the so-called "avoided cost" approach that you heard from your earlier panel, is not inadvertently disrupted.

With a rapid increase in tipping fees, current market forces are already providing attractive incentives favoring recycling over disposal. We believe that Federal involvement in materials recycling should be clearly focused and designed:

(1) to enhance the market base systems already in place through the promotion and expansion of waste paper exports and through increasing public awareness of recycling and source separation of recyclable materials; and

(2) to encourage state and local governments to increase the awareness of their respective communities of materials recycling, and to foster the development of some of the innovative type programs that you heard again this morning from your earlier panel, because these are really the wave of the future.

Mr. Chairman, we appreciate the opportunity to present our views and our experience on the issue of solid waste management, and we welcome the opportunity to work with you and your committee in the development of national policies in this regard. Thank you.

Senator Baucus. Thank you very much, Mr. Cavaney.

Our next witness is Ms. Irene Schmidt with the ALCOA Recycling Company.

## STATEMENT OF IRENE SCHMIDT, ALCOA RECYCLING CO.

Ms. Schmidt. Mr. Chairman, thank you for the opportunity to testify on the role of aluminum can recycling in the management of our country's municipal solid waste.

I am Eastern Regional Manager for ALCOA Recycling Company, Inc., which is a wholly owned subsidiary of Aluminum Company of America, ALCOA. I am responsible for the promotion of aluminum can recycling, and the retrieval and processing of aluminum beverage containers on the East Coast.

ALCOA does not make cans, but we are a major supplier of aluminum can sheet to the beverage industry. We are also one of the largest factors in can recycling throughout the United States. We are very proud of the unqualified success of aluminum can recycling.

What began as a rather questionable proposition in the early 1970s—that a throwaway society could be induced to voluntarily save and return its beverage containers—has grown into a strong and healthy industry. Over 50 percent of the aluminum beverage containers produced last year were recycled, and that was over 35 billion cans.

Can collectors were paid over $200 million for returning their containers to the 10,000-plus recycling centers across the country. We estimate that more than 30,000 Americans are currently employed in some facet of the can recycling industry.

ALCOA has played a major role in the development of this new industry and has invested over $200 million in facilities and equipment to efficiently retrieve and remelt cans. Much of that investment has been "betting on the come." It is important, I think, to realize that recycling of any material or package will succeed only if the industries involved are willing to take risks, be creative and invest both time and money.

ALCOA Recycling Company was formed in 1978 to create a dedicated, continuing mechanism to encourage aluminum can recycling. We employ somewhat over 100 people. We operate 37 buying and processing locations, and we serve as a market for more than 700 third parties who are buying cans from the public. We also spend several million dollars each year on public relations, advertising and promotion to heighten recycling awareness.

The initial spurs for getting ALCOA into recycling were energy conservation and litter control. Recycling an aluminum beverage can saves 95 percent of the energy required to make that same can from bauxite ore. An aluminum can sheet is an important source of revenue for ALCOA, we did not and we do not want the package that is made from our material to be a part of the U.S. litter problem. Recycling also saves raw materials, most of which are imported.

We also like to believe that recyclability is a positive factor in the consumer's choice of package for beer and soft drinks. Most importantly, used beverage cans have become an important source of metal for us, sort of an above-ground mine.

We believe that demand for these cans will exceed supply at least through the end of this century, so there is no concern about increased recycling glutting the marketplace.

We believe there are three prerequisites for a successful recycling effort; the first being consumer awareness; the second being convenience; and the third, price. We have crossed the 50 percent mark by combining those three and we will continue investing to capture as large as possible a percentage of the other 50 percent.

ALCOA has also begun to try to reach the higher income segments of society, for whom price is not a significant motivator, through support of charitable recycling activities. Donated cans are turning out to be excellent fundraising tools.

We have a wonderful example in a program called "Aluminum Cans for Burned Children." This program, which is in place in approximately 20 cities across the country, will generate 26 million new cans for recycling this year alone. We hope to have a program in D.C. within the month.

We feel that any charitable organization can win by asking people to donate what they, in the past, considered garbage, rather than giving money. There is no reason why aluminum cans should be part of any consumer's or any municipality's garbage.

Although aluminum cans are less than 1 percent of the municipal waste stream, they are a part of the litter and landfill solution, not the problem. Certain steps on the road to reducing our landfill wastes are fairly clear. Like ALCOA, material suppliers must be responsible for closing the scrap loop through recyclability, and all producers of packaged food and beverages must work aggressively toward 100 percent technical and economic recyclability of their packages.

The Federal and State governments can help by encouraging school recycling education, particularly on the elementary school level. State and local governments can help remove zoning barriers which exist in many areas against establishment of recycling centers. Lawmakers considering restrictive packaging legislation, must recognize that in terms of voluntary recycling not all packages are created equal.

We hope and believe that the new found urgency on these topics will help us to boost the national can recycling rate to 65 or 70 percent in the next few years.

Mr. Chairman, thank you again for the opportunity to testify on this vital topic. I have submitted written testimony with additional information, but I will be happy to answer any questions.

Senator **Baucus**. Thank you, Ms. Schmidt.

Next we will hear from Mr. Lewis Freeman of the Society of Plastics Industry.

## STATEMENT OF LEWIS FREEMAN, VICE PRESIDENT, GOVERNMENT AFFAIRS, SOCIETY OF PLASTICS INDUSTRY, ACCOMPANIED BY PAT TONER, TECHNICAL DIRECTOR

Mr. **Freeman**. Good morning. I am Lewis Freeman, vice president of government affairs for the Society of Plastics Industry. Accompanying me is Pat Toner, sitting behind me, our technical director, who will assist me, if needed, in answering your questions.

We thank the subcommittee for the opportunity to present views on the handling and disposal of municipal solid waste in this country. The SPI represents the manufacturers of plastic raw materials, fabricating machinery and molds, and finished plastic products.

Last month, the SPI Board of Directors adopted a new policy statement on the municipal solid waste issue. The statement acknowledges the growing concern about solid waste disposal by many states and communities. It further states that "SPI believes municipal solid waste disposal methods should be economically prudent, environmentally sound, and should take into consideration the needs of each community."

The new SPI policy supports a comprehensive management scheme for disposal of municipal solid waste involving the following elements:

First, recycling of materials after their originally intended use has been satisfied, either as individual materials or co-mingled products.

Second, waste energy incineration with resource recovery.

Third, landfill disposal where recycling or incineration are not appropriate or effective.

The most important feature of SPI's policy on municipal solid waste is that it embraces the concept that a combination of solutions will be required in the future to handle the nation's solid waste, with the formula differing to some degree from community to community and from State to State.

We believe there are solid waste disposal problems in many communities because, first, as a society, we are using and disposing of an increasingly larger amount of materials; and, secondly, the most prevalent method of disposing of most of this waste, landfilling, is no longer viable in many communities due to the unavailability of additional or environmentally acceptable space.

Greater dependence must be placed upon recovering the value of post-consumer materials by recycling them for other uses or through waste-to-energy incineration. To that end, I wish to comment upon SPI views and activities on both of these parts of the solid waste disposal solution.

On recycling—The SPI supports expanded research and development to increase the recycling of plastics, with particular attention to the support we render to the Plastic Recycling Foundation and other similar efforts. We also encourage wider use of products made from recycled plastics whenever practical.

The most successful post-consumer recycling experience in our industry has been the plastic bottle, the beverage bottle in particular. In 1986, some 20 percent of the more than 600 million pounds of PET, the resin used to make those bottles, were recycled into such products as fiberfill and industrial strapping.

Almost three years ago, the SPI's Plastic Bottle Institute joined with several of its members to help organize the Plastics Recycling Foundation. The Foundation's major work has been to sponsor the Center for Plastics Recycling Research at Rutgers University. The Foundation has embarked on a number of research projects which are detailed in the written testimony I submitted, but I want to highlight one or two.

The Foundation has recently purchased special equipment to further research on recycling mixed plastics, that is, products containing several different kinds of plastics.

The equipment that was purchased is already in use in Europe, and it has the title of ET-1. It was installed at Rutgers University just this past month.

There is also a project in Massachusetts that has purchased the same equipment. It, we feel, will address one of the questions raised by the earlier panel of what do you do with mixed plastics.

Furthermore, there have been contracts let by the Foundation this past year to conduct field trials on projects to improve collection systems for recycling plastics in the municipal solid waste stream.

I would be negligent if I did not extend an invitation to anyone on the committee or staff to visit Rutgers and see the work and the projects sponsored by the Plastics Recycling Foundation.

Finally, plastics are recyclable. The technologies do differ from plastic to plastic as do the economics of collection and markets for reuse.

While the extensive use of our materials in most markets is less than three decades old, and in many packaging applications less than a decade old, we have begun to respond to the social need to recycle and we will continue to do so.

On waste-to-energy incineration, the SPI supports it as an economically efficient and environmentally sound method for disposing of a majority of our nation's solid waste. We do not view waste-to-energy incineration as an alternative solution to recycling, but rather as a major part of the solution for all of society's waste

To the extent that recycling can be done with economic efficiency, it should be. What is not recycled, though, can still have value as a fuel. The presence of plastics in the waste stream is a unique asset to the energy recovery process in an incinerator.

Finally, a word about landfilling. We recognize that landfilling will continue as a method for disposing of incinerator ash, noncombustibles, and for municipal solid waste in some communities. In those latter instances, the presence of plastics in the landfill is environmentally safe. I might add, it also, in many instances, enhances landfilling by serving as liners, and more recently as caps for landfills.

In conclusion, the Society of the Plastics Industry believes that the time has come for an end to the excessive dependence of our nation's communities have placed upon landfills as a method for dealing with the municipal solid waste.

Greater emphasis in the future must be placed upon the recycling of materials and the recapturing of fuel values through waste-to-energy incineration, only turning to landfills when these methods are not appropriate or effective. SPI is dedicated to pursue policies and programs for the plastics industry to help make that happen.

Senator BAUCUS. Thank you, Mr. Freeman.

Our last witness is Mr. Michael Sappington of the Secondary Lead Smelters Association.

## STATEMENT OF MICHAEL SAPPINGTON, SECONDARY LEAD SMELTERS ASSOCIATION

Mr. SAPPINGTON. Thank you, Mr. Chairman.

In the interest of time, I will briefly summarize my remarks, however, I would like to ask that my written testimony previously submitted be included in the record.

My name is Michael Sappington, and I am appearing today in my capacity as executive secretary of the Secondary Lead Smelters Association, which I will refer to as the SLSA. The SLSA is a nonprofit national trade organization that represents the interests of the secondary lead recycling industry.

The secondary lead recycling industry is the country's major producer of lead. The SLSA member companies produce approximately 80 percent of the domestic supply of secondary lead by recycling scrap materials containing lead, principally lead acid batteries. Secondary lead accounts for over 50 percent of the lead used in the United States.

The SLSA is an environmental trade association, that is, its principal focus is on environmental issues and it devotes a considerable amount of its energies to ensuring that the industry's operations are conducted in an environmentally beneficial manner and that the benefits of recycling are recognized and encouraged by both Congress and the regulatory agencies.

Approximately 70 million spent lead acid batteries are disposed of each year in the United States. Contained in these batteries are approximately 70 million gallons of sulfuric acid and one-and-a-quarter billion pounds of lead. The secondary lead industry collects these spent batteries and reclaims the lead and the plastic case for reuse and resale back to the original battery manufacturers and other customers, thus ensuring that the potentially hazardous wastes are not improperly disposed of and thereby avoiding a potential endangerment to the public health and the environment.

The secondary lead recycling industry provides a valuable service to this country through its recycling efforts. Without the industry, obviously, millions of these spent batteries would be discarded along the nation's roadsides or improperly disposed of in landfills.

Unfortunately, since 1980, the industry has contracted from approximately 60 plants to 23. While this shrinkage is partially attributable to economic factors such as lower capacity or under capitalization, and significant foreign competition, much of the decline is the result of burdensome environmental regulations, particularly pursuant to RCRA.

The EPA, in response to congressional mandate under RCRA, has concluded that the industry's primary raw material, spent batteries, are hazardous waste and is attempting to further regulate all activities associated with the recycling of spent batteries. There virtually does not exist any other industry whose raw materials are subject to such regulation.

Ironically, therefore, despite Congress' mandate to promote recycling activities, EPA's efforts have hampered the industry. The result is that fewer plants exist today, resulting in a decline in the spent acid battery recycling rate. Continued cessation of operations will mean that more batteries will be improperly disposed of, creating the very potential dangers that Congress attempted to avoid through the promulgation of RCRA.

The industry promotes recycling and in doing so aims at protecting human health and the environment by minimizing the generation and land disposal of hazardous waste, and this is also the aim of RCRA. Accordingly, EPA should not pursue regulatory efforts that will result in cessation of recycling operations.

We must avoid the situation which has been referred to as environmental gridlock. This occurs when well intented regulations are strict, so broadly applied that they actually result in environmental degradation.

If hazardous materials recyclers are regulated out of business, what are we going to do with the hazardous materials? Such a situation is beginning to exist today. For example, the strict joint and several liability provisions contained in RCRA and CRCLA are well-intended and may be necessary in some instances, but are totally disastrous when applied to the recycling industry. Scrap collectors simply refuse to handle materials that EPA calls hazardous waste because the potential liability outweighs the economic incentives.

Due to some of these unreasonable requirements, materials that would otherwise have been recycled end up in the Nation's waste pile. Congress can correct this problem by replacing the strict joint and several liability provisions in RCRA and CRCLA with a negligence standard for those involved in recycling industries.

Negligent scrap handlers should be held accountable for any environmental insult they create. However, subjecting them to potential strict joint and several liability really only exacerbates the nation's solid waste problem.

Finally, EPA's regulations have gone too far in defining recyclable materials as solid waste. Congress can correct this problem by making its intent clear to EPA that these valuable materials are not to be regulated as Subtitle C wastes. EPA should be directing its efforts toward disposers of recyclable materials rather than over-regulating the recyclers of those materials.

In closing, Mr. Chairman, I want to emphasize that SLSA is committed to recycling, and we are hopeful that the subcommittee can identify mechanisms to promote recycling and ensure the survival of this valuable industry. We are willing and anxious to assist you in addressing the concerns raised in our testimony and written remarks which have been submitted for the record.

Thank you for the invitation to appear, and I will be happy to answer any questions.

Senator BAUCUS. Thank you, Mr. Sappington.

Your problem sounds quite similar to the problem that ASARCO faces, that is, EPA tends to broad-brush any hazardous substance, basically, into the hazardous category, which makes it difficult and the incentives are not there to recycle. You suggest that the solution is to change the burden of proof, or absolute standard, to one of negligence for recycling centers.

I am wondering if both of you have any other suggestions as to how we, in the Congress, might encourage EPA, or Congress itself, to set up different categories, to help the smelting industry, for example, to recycle, and the secondary lead processors to recycle. Are there any other ideas, any other sort of categorical approaches or any other suggestions you might have to help encourage these industries to recycle?

I assume that in the burning versus processing, which is a question that faces the smelter industry, the hazardous constituents in the processing that get out are no worse and may be less than hazardous constituents that may emanate from burning or incineration. I don't know if that is true or not, but I infer that from your earlier comments.

Mr. SCHLIEPER. Senator, I think this is exactly correct, this is how we view our industry. I think you are also correct in sensing that the secondary industry has a similar problem to the primary industry. Both of our industries do, in fact, recycle rather than dispose of hazardous constituents.

I sense that there may be a failure on the part of the EPA to understand the congressional intent, and it has focused its attention primarily on protection of the environment, without consideration, or thorough consideration, of the recycling issue as a means of protecting the environment.

There seems to be a zeal to regulate emissions to groundwater, and so forth, without consideration or thorough consideration of the positive effects of recycling. An example of categorical classification of a substance, electric arc furnace dusts. Electric arc furnace dusts are generated in enormous quantities by the steel industry. They contain iron and zinc, primarily.

It is a listed hazardous waste by the stroke of a pen, and there has been a tremendous disincentive to our industry to recycle that material. We have the technology, and we have the capacity to recycle electric arc furnace dust. The number of seven million tons of that material sticks in my mind, and I don't know whether that is correct or not, but it is many millions of tons of electric arc furnace dust. It presently doesn't have a home. It has no place to go. It shouldn't go to landfills. It is ridiculous to put that in landfills.

Senator BAUCUS. We will have EPA up here at the next hearing, and these are the kinds of questions that we can ask them.

Mr. SCHLIEPER. There should be an encouragement or a recognition that there is capacity in place that, if properly and sensibly regulated, can deal with these problems. Electric arc furnace dust is one that I am particularly concerned about because of its volume, and there is an industry in place right now that could recycle that material rather than put it to the land.

Senator BAUCUS. I appreciate that. Thank you.

Mr. Cavaney, why is the foreign market for recycled paper growing at a faster rate than the domestic market?

Mr. CAVANEY. Primarily two points. We have done various studies over the years on this issue, and there is a direct correlation between the level of industrialization of a nation and the amount of per-capita paper usage. Given the faster rate of industrialization in the Pacific Basin, this difference is not surprising.

Senator BAUCUS. Does that mean that we are declining?

Mr. CAVANEY. No. What happens is that the faster the growth rate of your GNP, the more quickly, on a per-capita basis, a nation will absorb or use paper. The lion's share of a lot of our exports goes to the Pacific Rim nations that are growing at such quick and rapid rates. Like many things, when your usage rate is "maturing" we already use about 620 pounds per person, it is harder to add as you continue to go along. If you start from a low base, it's easier to increase.

The other reason why our recycled fiber is so attractive is because paper has, in virgin form, long fibers. Each time you recycle paper, the fibers get shorter and shorter and their application and usability decreases. The United States has very attractive long fibers, both in our virgin fibers as well as recycled fibers so, for these foreign countries that have minimal natural fiber resources, using ours to supplement their own provides them with much better and more attractive properties. From a price standpoint, it is very attractive to them to purchase from the United States, and that is why we are encouraged that, if there are not any barriers put up, there is quite an attractive offshore market for sometime to continue to sell this paper.

Senator BAUCUS. Some suggested that there is some cadmium or dioxins, and maybe some mercury ink, for example, in some paper. To what degree is that true and, if that is true, how do we dispose of paper with those constituents?

Mr. CAVANEY. First, to address the point of cadmium. We have not identified in any measurable quantities cadmium associated with paper. We understand that it may be somewhat involved with inks, but that doesn't affect us or it is not an area to which we could bring any expertise, so you would have to speak to somebody else in that regard.

In terms of dioxin, as you have mentioned, I appreciate the opportunity to share with you something that has just become known to us. As little ago as 1984 our industry had never been associated with dioxins. As a matter of fact, we had a number of tests run on our sludge in 1984 and uncovered none.

As a result of EPA's national dioxin study, and the significant increase in the ability of measurement technology to measure in the parts per trillion and quadrillion range, some trace levels of dioxin were discovered in some of our industry's sludges. This was a big surprise to us. It was a surprise to the EPA.

As a result of this finding, we and they joined together in a unique cooperative study to try and determine whether or not this dioxin was being produced by our process and, if so, what were the implications and what did it mean?

We started that study in the middle of 1986, and last month, a little over a week ago, the EPA and ourselves jointly released some results of that study which show that, in some but not all instances, dioxin is present in trace levels in the low parts per trillion range in some paper industry sludges, effluent and pulp.

We also, at about the same time, released the results of our own preliminary product testing study, which looks at various products and looks at the risk assessment models that we have been able to put together, utilizing the FDA dioxin potency values. As the EPA has said, and as we fully support, the levels that are being talked about are safe and virtually border on negligible, but its prudent to do more work in this area.

Paper is not considered a hazardous waste, and we do not feel that there is any safety concern at this particular time. We will be continuing to work with all of the Federal agencies in this regard, and we would be very pleased to keep your committee apprised of the progress in that regard.

Senator BAUCUS. Thank you very much.

Ms. Schmidt, you say that 50 percent of the aluminum cans today are recycled. What is the biggest impediment to boosting that percentage to a significant higher level? Why is it not 60, 70, or even 80 percent of aluminum cans recycled today, beverage cans?

Ms. SCHMIDT. One of the experiences we have gone through is recognizing that the second 50 percent is going to be much more difficult than the first 50 percent.

Senator BAUCUS. Why is that?

Ms. SCHMIDT. To some degree, because I believe in most of the urban areas there is a fairly high degree of convenience for aluminum can recycling now. As I said, convenience was one of the three factors you have to have. When you get into rural areas, it becomes economically more difficult to provide that convenience, so there tends to be a sparsening of convenience going on. If we are going to get that other 50 percent, some of that is going to have to happen.

In addition, I think, in the first years of aluminum can recycling, we focused on strictly those people who would do it for money, and we just realized a few years ago that there is a large percentage of people who wouldn't do it, pretty much no matter how much you paid them for those cans, if they had to go to a scrap dealer to accomplish that, because it would be an embarrassment to them.

We have started a lot of these charitable programs now, which I mentioned. Those are doing extremely well and are encouraging people, who have not recycled in the past, to do so. I think that we will be putting more emphasis in that area, as well as investing more dollars and more people in providing additional recycling facilities.

Senator BAUCUS. Why aren't more cans aluminum? Why aren't food cans aluminum, why just beverage cans?

Ms. SCHMIDT. We are now in the process of developing an aluminum food can. In fact, I believe that will be in the marketplace within this year, if it is not already there. I will be happy to check the date for you.

Senator BAUCUS. Most beverage cans are aluminum, but most food cans are not.

Ms. SCHMIDT. I am not an expert in the food can area, but I will tell you that I think the technical problems involved in packing food into a can are very different from those involved in packing a beverage into a container. As I said, I will be happy to get you some more information on that.

Senator BAUCUS. I appreciate that.

Mr. Freeman, are there some plastics that can be incinerated without adverse health effects, and some other plastics that cannot?

Mr. FREEMAN. No.

Senator BAUCUS. What I am trying to get at is what different categories of plastics are there that can be burned. I assume that there are more harmful effects if burned than some others.

Mr. FREEMAN. There is an almost infinite number of plastics, or at least some people think so.

Senator BAUCUS. I read somewhere that there are some organizations that color code or suggest color coding plastics in some way to get at recycling and reuse.

Mr. FREEMAN. Now you have asked two questions, so let me answer both of them, or try to.

With regard to incineration, different plastics do, in fact, have different characteristics when they are incinerated, but we believe that any plastic can be safely incinerated in a properly operated incinerator and one with emission controls.

One thing that I mentioned in my written statement, but not in my oral testimony, is that we do support national emission standards for municipal waste-to-energy incinerators.

We just completed participating in an interesting experiment that addressed one of the questions that had been raised about one of the plastics, namely, polyvinyl chloride, and whether or not it contributes to the creation of dioxin in incinerators.

The New York State Energy Development Authority, along with environmental authorities from Florida, Connecticut, New Jersey, California Power Authority, and our own Vinyl Institute, participated in a more than year-long study at the incinerator at Pittsville, Massachusetts, to better understand the nature of combustion and the creation of dioxins in that process.

Let me just read for you—it is in the written testimony—the conclusion of that report as it related to PVC and dioxins:

> The relevance to our industry was the study's finding that there was "no statistical relationship between the amount of polyvinyl chloride plastic in the garbage and levels of dioxins or furans after burning under good combustion conditions."

So we believe that any plastic can be safely incinerated in a properly operated incinerator.

With regard to the question you asked on classification, coding or whatever you want to call it, this is a question that has been raised as part of the same solid waste policy that our board of directors adopted last month. It pledges the association to develop a voluntary industry system for classifying containers by resin.

We have just adopted the policy, and we have not even put together the internal mechanism to implement it, but we are going to begin doing so within the next week. I am hopeful that sometime by the end of the year, or early next year, we will have a system to demonstrate, should that be desired in some communities.

Senator **BAUCUS**. Why would you want to divide plastics into different categories according to resin, is that what you said? Why would you want to do that? What is the point of that?

Mr. **FREEMAN**. There is a difference of opinion as to whether it should be done. Certainly, if you are going to recycle PET into fiberfill, you want to be able to distinguish PET. For the most part, PET is used for beverage bottles now, but it is entering other markets. If you wanted to recycle a particular type of plastic into a particular kind of product that can only be recycled from that particular resin, then it is helpful to know what that is.

As I mentioned, though, there is also pioneering work being done, and we think that this is going to take off like a shot, in recycling mixed plastics. In that case, knowing the difference between the resins would not particularly be beneficial. In the recycling of mixed plastics, you have a whole combination of plastics, they are extruded, and out comes lumber or whatever product. That is what they are doing in Europe.

Senator **BAUCUS**. One final general question. Do any of the panelists know the degree of Japan's recycling and reuse, and what incentives are there?

Mr. CAVANEY. Senator, I can talk to paper recycling. They have the top paper recycling rate in the world at 50.2 percent, which is considered to be about the theoretical maximum that you can get. It is primarily because of their very dense population and the lack of natural resources they have to make paper products. Europe is around 40 percent.

Senator BAUCUS. How much more expensive is that for them, or is it more expense?

Mr. CAVANEY. It is arguable as to whether it is more expensive. I think that a lot of the earlier panelists today shared with you some experiences in the State or local government area. I think it is more of an attitude and an awareness creation issue that is important, rather than a pure cost component.

Senator BAUCUS. Any other comments?

Ms. SCHMIDT. I know that the aluminum can recycling rate in Japan is 40 percent. I am not sure what the mechanism that they use is.

Mr. SAPPINGTON. Senator, the battery recycling rate is close to 100 percent in Japan according to a gentleman from Japan at the International Lead/Zinc Study Group here in town last month.

Senator BAUCUS. Is there any other comment that any witness would like to make at this point, which is under your skin, that you would like to get off your chest?

I want to thank the witnesses very much. The hearing record will be kept open for 10 more days.

[Whereupon, at 11:45 a.m., the hearing was adjourned.]

[Statements submitted for the record follow:]

Testimony of:

Becky Nord
Secretary/Treasurer
Midwest Paper Stock, Inc.
Bloomington, Illinois

COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
HAZARDOUS WASTE AND TOXIC SUBSTANCES SUBCOMMITTEE
UNITED STATES SENATE
OCTOBER 1, 1987

I am Becky Nord, Secretary/Treasurer of Midwest Paper Stock, Inc., a paper recycling company located in Bloomington, Illinois, approximately 200 miles south of Chicago. We are members of the Council of Waste Recyclers of the National Solid Waste Management Association. Our company began operations as a paper recycler in January, 1984 and has enjoyed steady growth throughout the past three and one half years.

Our family owns a company that has been involved in solid waste management as a landfill operator since 1964 and as a hauler since 1974. Over the years, we came to realize that even in rural McLean County, Illinois, the available landfill space was filling rapidly and that some type of waste reduction must be implemented. We had a first-hand knowledge of much of the commercial and industrial waste stream in our area and we felt it would make good sense to pursue the challenge of adding a major recycling component to our waste management system.

We spent about one year visiting other recycling plants in the midwest, talking with potential customers and material brokers, evaluating equipment needs and looking for a suitable building for our operation. We secured our financing and shipped our first bale of waste paper in January, 1984.

Beginning from that modest start, we are now shipping about 1500 tons of waste paper each month and our shipments are increasing. We are finding that as the cost of hauling and disposal of solid waste continues to rise, more and more of our business customers are looking seriously at recycling as a means of waste reduction and cost saving.

Shortly after we opened our doors, we faced our first crisis. The market price for recycled paper took a plunge. At the same time that we were trying to build up the volume of our business, the revenue available to us was shrinking. Had it not been for the fact that we were part of the solid waste management industry and could justify our recycling operations on the basis of solid waste disposal cost saving, our recycling enterprise would have been short lived.

Today, Midwest Paper Stock collects several grades of paper from offices, stores, print shops, and other establishments in our area. We also purchase baled cardboard from retail establishments which have elected to do their own segregation and baling. Although we prefer to have the recyclables separated from other waste by the generator, we will accept mixed loads of waste material for separation at our facility provided the waste is known to be rich in a recyclable component.

In the fall of 1986, we applied for and received a recycling grant from the State of Illinois to purchase a commercial paper shredder. We had found that many banks, savings and loan associations, credit bureaus and similar businesses with sensitive information were reluctant to recycle because of the confidentiality of their waste paper. With our new shredder, we are able to provide not only a recycling service, but also secure records destruction service. We are paid not only for the recyclables but also for providing the security service.

We have discovered that along with our paper supply, we receive a great number of wooden pallets. Many of these are of odd sizes, broken or otherwise unusable in their present form. We have begun to repair and recycle pallets both for our own use and for sale to our customers. However, we have to ship at least two hundred cubic yards of these to the landfill every month. Recently, I learned of an operation in the New York City metropolitan area where scrap wood is collected from a number of transfer stations and recycling facilities and taken to a central processing facility in Brooklyn. There the wood is chipped and the non-combustible materials, primarily nails and other fasteners, are removed. The chips are then sold as a fuel, providing the entire energy supply for a major industrial complex located on Staten Island. If there were a similar fuel purchaser located within a reasonable distance of our facility, we and other solid waste management companies in our area might be able to develop a similar operation. This illustrates the point that the availability of markets determines what can be recycled.

In August of this year, we expanded our recycling effort to include both glass and aluminum. We purchase these products from the general public as part of our full solid waste management service. We have found that this has increased our supply of both paper and cardboard because it has encouraged additional people to separate materials at the source. In addition, it has proven to be very effective in developing public relations.

Our biggest problem in handling solid waste is separating the recyclables from the non-recyclable material. If the generator, either commercial or residential, will do the separation, not only does it reduce our cost of processing the load but also this usually results in a cleaner product. We can justify accepting mixed loads of trash from commercial and industrial sources if we know that the loads are rich in cardboard or office paper. We would have difficulty accepting mixed waste loads from retail establishments such as shopping malls and generally encourage those establishments to do their own separation of the corrugated paper, the predominant recyclable material. We can then pay them for their material. As for mixed loads of municipal trash from residential sources, it is economically unfeasible for us to consider attempting to separate recyclables. Recycling of waste from residential sources depends completely upon the willingness of the householder to separate the recyclables, either for curbside collection or delivery to a recycling center.

Another problem with mixed municipal trash is the small but significant amount of hazardous materials it contains. We have found aerosols, paint thinner, cleaning solvents and acids when city packer trucks unload their materials. We have no way to police this type of material and we believe it would present a danger to our employees were they to attempt to sort such loads to recover recyclables.

Hazardous materials have largely been eliminated from the solid waste generated by commercial and industrial establishments in part as a result of the provisions of the Resource Conservation and Recovery Act (RCRA). RCRA does not address residential waste, however. Solid waste workers and recyclers are exposed to whatever hazardous materials are contained in the waste they receive. Reduction of these hazards would require a combination of product changes to minimize the use of hazardous materials and separate collection of any that remain. Because we do not attempt to separate loads of mixed municipal waste, we have not experienced a serious problem with toxic materials at our facility.

Our industry has found that recycling of residential waste can best be carried out if it is made easy and convenient to participate. The householder is asked to separate the designated recyclable materials from the remainder of his wastestream. Often, he will be provided special containers for the various materials. The recyclables are placed for collection along with the other solid waste, usually on a weekly schedule. The materials designated are those for which markets are available such as paper, glass and metals. Even so, the net cost of such system is such that communities elect not to implement residentail recycling programs.

One of the major impediments to reducing volume of waste by recycling is cost. People are unlikely to pay more than necessary to be rid of their solid waste. As long as disposal prices are low, there is little or no economic advantage in recycling. Disposal prices are increasing very rapidly in some parts of the country, most notably the northeast and in those areas, recycling has really come into its own. Many private and waste haulers and nearly all private transfer stations in the Northeast now include recycling as part of their waste management system because of the cost of alternative disposal options. It is only a matter of time before disposal fees increase in other parts of the country and when they do, I think we can expect our recycling activities to expand manyfold.

Another impediment to recycling is the recyclability of packaging materials. We are told that fibers can be used and re-used several times before they finally reach the end of their useful life. But if the paper is coated with plastic, or imprinted with inks laden with heavy metals, it is not recyclable. Plastic containers such as polyethylene milk bottles or PET soft drink bottles can be recycled but only if they are not mixed with other types of plastics. We would like to see the same consideration given to the recyclability of a packaging system as is given to its effectiveness in protecting and promoting the product which it contains.

The ultimate limit on all recycling activities are the markets for the materials recovered. A material is not recycled until it has been returned to commerce; the mere collection of the recyclable is not sufficient. I believe that federal, state and local governments should develop policies that will result in procurement of recycled paper products wherever possible. This strategy is often proposed but seldom implemented. Even if government purchases were merely symbolic, they would provide emphasis for the suppliers to make products made from recyclable materials more readily available in the marketplace.

How can we increase the amount of material we recycle? Clearly the answer is in the demand for the material. Paper of various grades accounts for the greatest tonnage of material that is recycled that otherwise would be disposed of as municipal solid waste. According to figures provided by the American Paper Institute, 17.6 million tons of waste paper of all grades was recycled in the United States in 1986. In that year, 3.7 million tons were exported. Over the past five years exports of waste paper have increased at a compounded annual rate of 12% whereas in domestic usage increased by only 4% compounded. Growth in the domestic consumption of recycled newsprint increased by only 2 1/2% annually. Our ability to increase our recycling of paper is heavily dependent on the growth in the export markets.

The new recycling programs coming on line, particularly in states where recycling is mandated, are expected to increase the supply of recycled paper dramatically. Experts in the waste paper industry anticipate that the prices paid for waste paper will fall, perhaps even to the point that recyclers will have to pay the mills to accept certain grades of material. We are totally dependent upon the capacity of the mills to accept recyclable paper as their feed stock.

I realize that now may not be the best time to propose an action that would negatively impact tax revenues, but nevertheless there is nothing more effective than some type of tax credit to encourage private businesses to take certain actions. Tax credits for the purchasers of recycled materials could help stimulate the demand that we need if we are to increase our recycling activities.

More importantly, a program of investment tax credits should be made available for the purchase or modification of plant and equipment to enable them to collect and process recyclables and return the material to commerce. Such a program, if properly designed and controlled, would significantly increase the demand for the material that we in the solid waste management industry can recover from the waste stream.

For example, the Tribune Company announced recently that it will increase the de-inking capabilities of its newsprint plant enabling it to double the amount of recycled newspapers and other grades of waste paper that it will be able to accept. This is the type of action that is needed if we are to increase our recycling activities. A program of investment tax credits to stimulate investment of this type would be the best single action that the Federal government could take.

I would like to see the federal government support research and development into new uses for recycled fibers. One area of personal interest is pelletized fuel as might be produced from mixed paper, newsprint and wood chips.

As I said earlier, my business benefitted from a grant from the state of Illinois that enabled us to expand into an area of recycling that previously had been unavailable to us. Grants can be useful provided they are carefully awarded and closely monitored. A one-time grant to purchase equipment such as we received, can be of value provided the equipment is purchased wisely and put to proper use. We do not favor grants to support the continuing operation of a recycling venture that is unable to survive on its own.

We believe that grants, if offered, should be made available to any legitimate recycler who meets the criteria for the grant, whether the recycler is a for-profit or not-for profit venture. There is nothing more frustrating for a recycler in the private sector than to find himself in competition with a not-for-profit entity that has been set up in business by government grants. In our area, one not-for-profit group collects cardboard at no charge to the generator. They are able to do this because they received government subsidies which result in no cost for labor. When I provide this service, I have to charge for it and for that reason, there is no way for me to compete. In effect, the commercial and retail establishments which receive this service are receiving free trash removal which in fact is not free at all. In their most recent report, the not-for-profit group acknowledged that it had a cost of $96.00 for each ton which it recycles which is more than double our cost. Yet, because of their subsidy, they are able to provide this service at no charge to the waste generator. This is the sort of inequity that operating grants all too often create.

In summary, there is much that can be done to increase the amount of solid waste that can be recycled rather than disposal of by landfilling or incineration. I believe our operations at Midwest Paper Stock illustrate this very well. We and our trade association, the Council of Waste Recyclers and the National Solid Waste Management Association are ready to work with any governmental unit, federal, state or local, to bring this about.

# TESTIMONY

for

UNITED STATES SENATE
SUBCOMMITTEE ON
HAZARDOUS WASTE AND TOXIC SUBSTANCES

PRESENTED BY

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New Hampshire Resource Recovery Association
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Introduction

The Wilton Recycling Center is the disposal facility for the residents and businesses of a six town Solid Waste District in a rural area of southern New Hampshire. The total population of the District is approximately 9,000. The Center, which opened in 1979, consists of a drop-off recycling/processing center, a small modular incinerator, and a transfer station. Currently, approximately forty five percent (45% by weight) of the incoming waste is diverted from disposal and is either reused or recycled. Thirty eight percent (38%) is incinerated to reduce volume and the remaining twelve percent (12%), including the ash from the incinerator, is transferred to a permitted lined landfill. (Appendix A)*

New Hampshire Resource Recovery Association

I serve as the President of the New Hamsphire Resource Recovery Association. The Association consists of 80% of New Hampshire´s municipalitites and presently provides education, marketing and technical assistance services in the area of integrated waste management, recycling, composting and incineration. (See Appendix B).

The success of Wilton and the Association are do in part to each other´s successes. The Association markets our recyclables and we succeed at managing the best recycling program in New Hamsphire. The Center is a model for rural recycling nationwide. In fact we just received notification from the National Recycling Coalition that the Wilton Program will receive the "1987 Outstanding Recycling Center Award".

I managed the Wilton Recycling Center for over two years and am currently the Director of the Wilton Solid Waste District. The following testimony is based on my experience in Wilton and my involvement with the New Hampshire Resource Recovery Association, as a member of the Board of Directors.

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*The appendices attached to this statement have been retained in committee files.

Financial Overview

In 1986 the Center sold almost $27,000 worth of recyclables. This is about one quarter of the annual operating costs. The net cost to run the Center in 1986 (including the debt service and capital costs) was $123,000. Without the recycling program, the District's solid waste budget would have been considerably higher. By recycling, the District saved between $77,000 and $180,000 in disposal costs. (Appendix C).

What follows are answers to the specific questions Senator Baucus and Senator Durenberger posed in the letter dated September 17, 1987.

1. WHAT ARE THE PROBLEMS YOU ARE EXPERIENCING IN MANAGING SOLID WASTE?

The major problem centers around the need for reliable, long term markets for recyclables. In order to recycle something, there must be a market for the material. If there is no market, all that is produced is organized trash. Recently, there has been a strong effort to recycle in all the north east states. New Jersey, Connecticut, and Rhode Island have passed statewide mandatory recycling. All these states as well as Massachusetts and New York have set up statewide programs and made large amounts of money available to assist municipalities in developing and promoting recycling. Even, New Hamsphire, which is cautious about state wide efforts is presently drafting comprehensive recycling legislation. With so many new programs coming on line in the next few years, I am very concerned that the current markets for recycled materials are going to be flooded. Unless there is an equal or larger increase in demand for recycled materials the price paid for materials will drop and perhaps some recycling programs will be unable to find any market for their materials. The Wilton Recycling Center will be particularly susceptible to the flood of materials on the market because it produces materials that are processed to a minimal degree and therefore less desirable in the market place.

Possible Solutions: To increase demand for recyclables, Federal, State and local governments must provide leadership by example and lead the way by buying products made from recycled materials and promoting market development

2. WHAT TYPES OF WASTE LEND THEMSELVES TO RECYCLING AND WHAT TYPES OF WASTE ARE MORE DIFFICULT TO RECYCLE?

In general, the simpler a product is (i.e., the fewer materials it is made of), the more easily it is recycled. An example of this is the aluminum can. The aluminum can has a high rate of recovery because it is made of one material and is valuable as a secondary material due to tremendous energy savings over raw material use. The aluminum industry has made tremendous strides to promoting the recycling of aluminum cans.

2a. The following are materials that we recycle or reuse in Wilton:

- Aluminum Cans
- Aluminum Foil
- Automotive Batteries
- Books and other unusable items
- Brown Bottle Glass
- Cast Iron
- Clear Bottle Glass
- Clothing
- Color Ledger Paper
- Copper, Brass and other high value metals
- Corrugated Cardboard with Brown Paper Bags
- Food Waste
- Green Bottle Glass
- High Density Polyethylene (milk, cider and water jugs only)
- Light Iron (white goods, appliances, sheet metal, etc)
- Mixed Paper (office paper, cereal boxes, etc)
- Newspaper with Magazines
- Polyethylene Terephthalate (soda bottles only)
- Styrofoam Packing Material
- Yard Waste

2b. The following are materials we find more difficult to recycle:

TIRES: Tires are recyclable, but currently there is no "end use" market for tires in the Northeast. As a result, nearly every town in New Hampshire has a tire pile. Tire piles are a serious health hazard because they pose a fire hazard and are a breeding ground for insects and rodents. The NHRRA estimates there are 15,000,000 tires stockpiled above ground in New Hampshire.

In Wilton, we have an estimated 7,000 tires. In the past, I have contracted to have tires hauled away for $.60/tire to Maine where they were stockpiled. This isn´t a final solution, it just moves the problem from one location to another.

Potential Solution (Technical): In New Hampshire three companies are proposing solutions. (1.) A tire-to-energy facility which would incinerate whole tires and produce electricity. (2.) And another company is proposing to chip tires into 1 to 1 1/2 inch chips, remove the wire, and market the chips to solid fuel users (coal, wood chip and wood waste haulers), and (3.) Is a proposal to grind tires to small granules, removing wire and chemically treat the material to produce a number of rubber products.

Potential Solution (Legislative): A revenue mechanism (such as a tire deposit) is needed at the state or federal level that will assist in dealing with the millions of stockpiled tires. Also stronger incentives are needed to promote the use of the valuable natural resources that tires are made of in road construction and other product applications.

**TIN CANS**: Tin cans have traditionally been recycled in Wilton. In the past, tin cans have been marketed to scrap metal brokers for the steel in the cans (tin is only a very small percentage of the metal of a tin can).

Due to an increase in industry specifications, the tin is now considered a contaminant and will not be accepted by the steel industry. As a result the only market is the detinning industry. Specifications for tin cans at a de-tinning plant require that the can be rinsed, the labels removed and the cans flattened. The Wilton Recycling Policy Committee is reluctant to require the public to prepare cans to these specifications due the to already high demand we place on them to separate materials. There are machines that will process cans to these specifications, but they are extremely expensive and require a larger quantity of cans than are generated in Wilton, to operate cost effectively.

Possible Solution: A regional processing center could process all of New Hampshire's steel/tin cans.

BULKY WASTE: Bulk waste is made of stumps, mattresses, couches, televisions, etc. Currently we landfill these large items at great expense ($100/ton, including transportation).

Possible Solutions: Stumps and brush can be chipped for fuel in biomass plants or used as bulking agent for compost at waste water treatment plants. We have recently been contacted by private companies that offer this service. It is expensive, however, to hire this service. I do not know of a way to recycle furniture , other than to break them down by hand to their base components.

DEMOLITION WASTE: In Wilton, we charge forty dollars per cubic yard for demolition waste that must be landfilled. As a result, the contractors in the area have found it cost effective to separate out wood debris, packaging and metals for recycling, for which there is no charge. The remaining waste, which is still a considerable amount, must be transferred to a landfill.

Potential Solutions: There is processing equipment that can crush, chip and segregate most demolition waste into useable products, but it is expensive and requires a large economy of scale. It would lend itself to being done on a regional basis, like tin can processing.

WASTE OIL: Over the past several months, waste crankcase oil has become very expensive to recycle. Until 1986, service stations, recycling centers and other collection sites could sell waste oil for as much as $.30 per gallon. Now they have to pay as much as $.45 per gallon to recycle it. As a result, the traditional collection points for waste oil (gas stations) are hesitant to accept used oil from the general public and I fear it is being improperly disposed of in landfills and backyards, which poses a grave threat to groundwater. Increased disposal costs are due in part to three factors: (1) the regulation of waste oil as a hazardous waste by neighboring New England states, (2) the drop in the price of used oil, and (3) stricter regulations on the use of waste oil. In Wilton we do accept waste oil for recycling or incineration, and we have been accommodating conscientious people, from outside the district, that do not want to improperly dispose of it.

Possible Solutions: Make the petroleum industry who produces this essential product (lubricating oil) take responsibility for the full cost of what it sells. They should fund a national program for used oil collection and recycling. It is very important that every solid waste and recycling facility fund the collection and recycling of waste oil.

ASH: Incinerator Ash is a major problem because of its potential to be toxic. The toxicity of incinerator ash may be controlled by enacting strict controls over what is burned. Wilton's incinerator ash, in the recent past, was hauled to a regional, privately owned lined landfill along with other nonrecyclable and nonburnable waste. For the past six weeks, we have been been unable to dispose of ash, even though an EPA toxicity test was done that showed the ash to be well within the acceptable levels of heavy metals. This is due to the fact that the landfill operators say they are "concerned with the liability issue of accepting ash because the federal EPA is considering mandating incinerator as as toxic waste".

Possible Solutions: It is important for the EPA to issue its position on incinerator ash so we know where we stand. It is also important that the items that cause incinerator ash to take on toxic properties be identified. These items must be removed prior to burning or else the whole waste-to-energy solution could fail because of the high cost of ash disposal. It is not incineration that is the problem, it is what, we as a society, consume and throw away that causes toxic ash.

HOUSEHOLD HAZARDOUS WASTE: The Wilton Recycling Center does not accept toxic materials. However, there are many common items in the municipal waste stream that are toxic, including oil based paints, insecticides, household cleaners, and dry cell batteries The State of New Hampshire provides matching grants for Household Hazardous Waste Collection Days. These collection days are for residents who can bring their toxic materials to a central location where a licensed hazardous waste hauler will accept, transport and properly dispose of them. These collection days are presently held once per year because they are very expensive. From our experience, only people who are very conscientious bring their materials to the collection days. What does the rest of the population due with their toxic waste? Do they pour it down the drain? Dump it in the woods? Throw it in with their regular trash? I would venture to guess yes to all of the above.

Possible Solution: Educate the public which products they use are toxic and the dangers of improperly disposing of toxic items. A convenient and safe method of disposing of household hazardous wastes would be a more effective way of removing them from the regular waste. Alternative, nontoxic products must be advertised and the importance of buying only the amount immediately, needed when it is necessary to buy a hazardous product, must be stressed. If the chemical industry does not want to go out of business, or change to nontoxic products, then they must fund the cost of disposing of these products.

PLASTICS: There are hundreds of plastics in the waste stream that can be recycled, but it is difficult to identify one from another. In Wilton we presently recycle polyethylene terephthalate (PET), in the form of plastic soda bottles and High Density Polyetnylene (HDPE) in the form of plastic milk jugs.

Possible Solutions: An identification system for different consumer plastics, would allows us to recycle significantly larger quantities of post consumer plastics. Such a system might consist of a stamp on each container stating what kind of plastic the container is made of. Also the technology for mixed plastic recycling is making strides. This is where mixed plastic is blended to make into plastic lumber and other products.

3. ARE THERE COMPONENTS OR PARTICULAR SOURCES OF SOLID WASTE THAT CONTRIBUTE TO SOLID WASTES CONTAINING HAZARDOUS CONSTITUENTS?

The following is a partial list of common items found in the waste stream that contribute to hazardous properties in solid waste:

- Oil and water based paints
- Paint thinners and turpentine
- Pesticides and herbacides
- Oven and drain cleaners
- Pool chemicals
- Used antifreeze and oil
- Dyes used in packaging and printing
- Dry cell batteries

These common wastes are not regulated and pose a threat to our ground water.

Incinerator ash, also has the potential to be toxic (Please refer to question #2 for a discussion on Incinerator Ash).

4. WHAT ARE THE EXISTING WAYS TO REDUCE EITHER THE VOLUME OR TOXICITY OF SOLID WASTE?

VOLUME REDUCTION: Volume can be reduced three ways. The phrase REDUCE - REUSE - RECYCLE is very valid.

Reduce: Waste reduction can be brought about by reducing the amount that is produced, brought and therefore disposed of. This should be achieved in a variety of ways. One method might be to impose a "package tax" such as the legislation recently passed in New York State. This tax, or something similar, would help reflect the true cost of a product. (i.e., The cost to produce and dispose of a product.) If the public paid a price that reflected the true cost of a product, it would result in consumers buying products that are recyclable or are made from recycled materials. Another method of achieving reduction would be to educate consumers about the advantages of buying packaging that is made from recycled materials or is recyclable. Educating the public about waste reduction methods such as buying in bulk and backyard composting. In Wilton, we encourage people to rethink this buying pattern in favor of less wasteful packaging.

Reuse: Why do people buy plastic bags to put their sandwiches in when they are throwing away the plastic bags that the bread for these sandwiches came in? It is important to educate the public about the importance of reuse, as well as ways to reuse items rather than throwing them away. In Wilton and other recycling centers in New Hampshire we provide a space for reusable items to gather and be taken home by those interested. Also, throughout the State, as in other regions, rummage and yard sales are an important ingredient in a reuse strategy.

Recycle: From our direct hands on experience, an aggressive Recycling Program can divert up to fifty percent of the waste stream. Recycling must be supported at the federal, state and local levels.

Toxicity Reduction: The best method, to my knowledge, of reducing toxicity of waste is through education. The public must be educated as to what materials are making waste toxic. They must be encouraged to buy alternative products, when available. The private sector must be encouraged through incentives to design products for recyclability.

5. WHAT ARE THE IMPEDIMENTS TO REDUCING EITHER THE VOLUME OR TOXICITY OF WASTE?

   A. Reduce: The impediments to reducing the amount of waste generated are cheap disposal methods, and the lack of education of the general public, businesses and industries as to methods of waste reduction. In some cases there is a lack of financial incentives to reduce waste production. This is the case when it is cheaper (and easier in the case of the consumer) to continue the current buying practices.

B. Reuse: The impediments to reusing waste are the lack of education about the methods of reusing materials. This may be due to the lack of incentives to reuse rather than throw away. There is a need to combine the convience of "throw away" products with the true cost of disposing of these products.

C. Recycle: The impediments for recycling can be divided into three catagories: Collection, Processing and Markets.

a. Collection: The impediment for collection presently is the capital needed to set up a collection program. It is important to integrate collection of recyclables with other waste collected. This may require collection vehicles, processing equipment and buildings. There is also the need to educate the public as to the importance of what is required of them to participate in a curbside collection program. In the Wilton Region, because it is rural, people bring their recyclables and waste to the drop-off center. The San Jose, California Curbside Collection Program which is represented at this hearing, is an excellent example of urban recycling.

b. Processing: The major impediment to processing is the high capital and start up costs of a processing center. Land, buildings and equipment are all necessary.

c. Markets: The impediments of marketing secondary materials are the ability to prepare materials to current market specifications and the need for consistent, long term markets for recyclables.

6. WHAT FEDERAL OR STATE POLICIES ARE NEEDED TO ADDRESS THESE PROBLEMS?

I have identified the need for education. This can not be stressed enough. Education must be done on several levels, curriculum in schools and general information directed at the public at large. It is important to educate professional designers of packaging and products to design for recycling. We must educate the community and businesses handling waste and assist them in developing recycling programs.

We need policies that will assist in the implementation of management techniques involving source reduction, source separation, recycling, composting, resource recovery and proper landfilling and other methods of disposal.

It will be equally important for Federal, State and local governments to lead the way in increasing the demand for recycled goods by purchasing them and promoting market development.

The National Recycling Coalition has developed a national recycling policy (Addendum D) which we, as the Wilton Recycling Center endorse, and we, as the NHRRA, endorse. I urge each of you to read it and take action to have the federal government adopt it as policy.

7. ARE THERE ANY POLICIES THAT ARE BEST IMPLEMENTED AT THE FEDERAL LEVEL, STATE LEVEL?

Federal policies should include:

A. Procurement programs for the purchase by the public sector of products made from secondary materials.

B. Taking steps to reduce the amount of unnecessary packaging and taking steps to improve the recyclability of all packaging by encouraging the elimination to the maximum extent possible, factors in the design of products which impeded the products recyclability and inject hazards into the recycling process.

C. Considering appropriate changes in tax and regulatory policies so that virgin and secondary materials can complete on an equal basis.

D. Considering legislation that would allow for the price a consumer pays for a product to be its "true cost" (i.e., reflect the cost to produce and dispose of that product). Thereby allowing the consumers to make an informed choice when buying a product.

E. Consider making Federal Funds available in the form of grants or low interest loans, for capital start up costs for both public and private waste reduction/recycling products.

F. Educate the general public, businesses, industry and the public sector. A strong national education policy might utilize the educational components adopted by the National Recycling Coalition, which is endorsed by myself, NHRRA membership, New England Resource Resource Recovery Conference participants, the Eastern Regional Conference of the Council of State Governments, the New York State Legislative Commission on Solid Waste Management among others, these include:

a. A program to encourage consumers to purchase durable, reusable and recyclable goods. The program would emphasize the environmental advantages of recyclable consumer goods.

b. The labeling of consumer items to identify only those products which can be practically recycled by the consumer and encouragement for a Buy Recycled Program.

c. The development and incorporation of recycling curriculum and educational as a major component in the school curriculum. It is extremely important that students learn to make rational waste-conscious decisions and to recycle at the waste generation level.

d. Supporting the national enactment of an annual "Recycle Week" as a means to remind and educate the population about the benefits of recycling.

5. Encourages the U.S. Postal System to develop a recycling commemorative postage stamp set to demonstrate the national commitment to recycling and remind the public that recycling helps communities care for the environment.

6. Supporting a national policy that encourages business and industry to establish and promote educational programs that inform consumers about the recyclability of consumer products and the potential hazards resulting from the disposal of the products which the manufacture and sell.

7. Leadership for research and development and transfer of technology for uses in industry, commerce, and all levels of government, recycled, recyclable, secondary, and waste materials as the feed stock of industry.

## Conclusion

It is evident that the federal government should take an active role in facilitating the reduction, reuse and recycling of America's waste. America can no longer afford to be a "throw away society". We must promote policies which reduce the exploitation and disposal of limited and valuable resources and encourage sound waste management decision. The words of the National Recycling Coalition say it best:

> "We recognize the necessity of immediate implementation of public policy decision which reduce the exploitation and disposal of limited and valuable resources and encourages waste conscious decisions. Failure to aggressively pursue change through public education, business and industry policy developments, federal, state and local rule-making authority and legislation, and individual participation will lead to the continued degradation of our environment and a weakening of this nation's competitive position in the world economy."

NATIONAL
RECYCLING
COALITION
INC.

# The National Policy on Recycling

45 Rockefeller Plaza, Room 2350
New York, New York 10111

## INTRODUCTION

The National Recycling Coalition supports and recommends the implementation of policies by all levels of government — federal, state and local — by business and industry, and by individual citizens which will increase the viability of waste reduction, recycling, reuse and recovery as mechanisms for resource conservation, environmental protection and economic development.

The National Recycling Coalition recognizes the necessity of immediate implementation of public policy decisions which reduce the exploitation and disposal of limited and valuable resources and encourage waste conscious decisions. Failure to aggressively pursue change through public education, business and industry policy developments, federal, state and local rule-making authority and legislation, and individual participation will lead to the continued degradation of our environment and a weakening of this nation's competitive position in the world economy.

The secondary recycled materials which recycling industries collect, process and utilize in production have difficulty competing with virgin materials because the cost of virgin materials rarely reflects the true social and economic costs of their extraction, depletion and disposal. Individuals have come to prefer new materials even though recycled content goods often are of equal or better quality. Business and industry overlook research and development of recycled products and reutilization of materials because disposal has been easy and inexpensive.

The National Recycling Coalition calls for affirmation of the economic and social worth of waste reduction, reuse and recycling by removing all barriers to scrap, secondary and recycled materials competing favorably with virgin materials, by educating consumers to make waste conscious decisions and by involving business and industry in aggressive research and product development to increase recycling and recyclability. Recycling is a policy for a clean, safe and economically healthy future.

## TRANSPORTATION POLICY

The National Recycling Coalition supports policies that make the cost of transportation, whether by rail, seagoing vessel or truck, of secondary materials originating from a recycling facility or from a manufacturer to recycling facilities, to be equal or less than the cost of transporting virgin raw materials.

## TAX POLICY

The National Recycling Coalition supports and recommends that the 1986 federal tax reform measure and other tax laws be reviewed regularly to identify inequities and undue bias that provide tax advantages to the manufacture and distribution of products made from limited resources and virgin materials. In those cases where tax laws encourage the exploitation of limited resources and the continued proliferation of single-use products, those tax laws should be modified to equalize the benefits of the manufacture and marketing of products developed primarily from recycled feedstocks. The purpose is to encourage industry and consumers to reject continued exploitation and disposal of limited and valuable resources and to select products that are recycled or are recyclable.

If these benefits are not equalized the National Recycling Coalition recommends tax modifications that would address this concern including, but not limited to:

- investment tax credit
- tax incentives for new applications of waste materials, and
- purchase or secondary use tax incentives

## NATIONAL LEADERSHIP FOR RESEARCH AND DEVELOPMENT AND TECHNOLOGY TRANSFER

The National Recycling Coalition endorses a national policy of the highest priority, the research, development and transfer of technology for uses in industry, commerce and all levels of government of recycled, recyclable, secondary and waste materials as the feedstock of industry. Implementation of this policy would result in less dependency on limited and virgin resources, the use of renewable, reusable and recyclable materials, and the research and development of substitute feedstocks of primarily recycled and secondary materials.

The National Recycling Coalition recommends that the Federal Government should allocate staff and resources to facilitate the transfer of information about existing and emerging recycling technologies for all commodities currently recycled from the municipal solid waste stream including, but not limited to, metal, glass, paper, plastics and yard waste. This technology information transfer should include, at a minimum:

- standardized definitions and specifications for use and applications of these materials;
- information on the value of these materials; e.g. the value of compost for agriculture productivity and landscaping.

## NATIONAL RECYCLING DATA BASE

The National Recycling Coalition recommends the establishment of a national publicly accessible computerized recycling data base to provide an annual report on the national rate for recycling of all commodities recycled from the municipal solid waste stream as defined in the Resource Conservation and Recovery Act. Such a data base should initially be compiled by the federal government from the existing data bases of national trade associations, where available. Where not available, such data should be aggregated by the federal government in a confidential manner according to the Standard Industrial Classification code. In addition, the data base will include economic data on the costs of recycling commodities and of collecting and disposing of garbage. This analysis should be done with an accounting system that recognizes the avoided landfill and collection costs resulting from recycling.

## STANDARD SETTING ORGANIZATIONS

The National Recycling Coalition urges that all public and private bodies with responsibility for fixing product standards consider the ease of recycling at the end of the product's useful life and the use of waste materials in the manufacture of new products as factors in standard development.

## A NATIONAL POLICY FOR ENVIRONMENTAL QUALITY

The National Recycling Coalition supports and recommends a national policy of the highest priority that achieves maximum environmental quality, the use of renewable energy sources, alternative fuels and maximum materials recycling.

The National Recycling Coalition further supports and endorses the following:

### Product Design for Recyclability

The National Recycling Coalition supports and recommends that manufacturers consider reuse and recycling in product design. The National Recycling Coalition supports and encourages business and industry policies and government action to eliminate, to the maximum extent possible, factors in the design of products which impede the products' recyclability and inject hazards into the recycling process.

### Maximum Enforcement of Procurement Laws

The National Recycling Coalition recommends the maximum enforcement of existing laws requiring the procurement by governmental agencies of materials and supplies made from recycled materials. The National Recycling Coalition recommends the immediate establishment and enforcement of recycled product procurement requirements at all levels of government.

## PUBLIC-PRIVATE PARTNERSHIP

The National Recycling Coalition recommends that municipal, county and state governments accord priority consideration to pre-existing private sector, volunteer and nonprofit programs in the development and implementation of solid waste management and recycling plans. Pre-existing programs providing satisfactory service should be incorporated into those plans.

## A NATIONAL POLICY FOR RECYCLING EDUCATION

The National Recycling Coalition recognizes that education is the key to affecting change that results in rational decisions to increase waste reduction and utilize recycling. Through a national education policy that emphasizes environmental quality, resource conservation, waste reduction, recycling and sustainable growth, society in the future can enjoy the best of science and technology and live in harmony with nature.

Additionally, the National Recycling Coalition recommends the following educational components as part of a strong recycling educational policy:

### Buy Recycled Program

The National Recycling Coalition strongly encourages a program to encourage consumers to purchase durable, reusable and recyclable goods. The program would emphasize the environmental advantages of recyclable consumer goods.

**Labeling**

The National Recycling Coalition supports the labeling of consumer items to identify only those products which can be practically recycled by the consumer and shall encourage a Buy Recycled Program.

**Curriculum Development**

The National Recycling Coalition believes that educational systems should develop and incorporate recycling curriculum and education as a major component in the school curriculum. The National Recycling Coalition believes it is extremely important that students learn to make rational waste-conscious decisions and to recycle at the waste generation level.

**Recycle Week**

The National Recycling Coalition supports the national enactment of an annual "Recycle Week" as a means to remind and educate the population about the benefits of recycling.

**Postage Stamp**

The National Recycling Coalition encourages the U.S. Postal System to develop a recycling commemorative postage stamp set to demonstrate the national commitment to recycling and remind the public that recycling helps communities care for the environment.

**Commercial Sector Education**

The National Recycling Coalition supports a national policy that encourages business and industry to establish and promote educational programs that inform consumers about the recyclability of consumer products and the potential hazards resulting from the disposal of the products which they manufacture and sell.

# TESTIMONY FOR
# HAZARDOUS WASTE AND TOXIC SUBSTANCES SUBCOMMITTEE
# of the
# SENATE ENVIRONMENT AND PUBLIC WORKS COMMITTEE
October 1, 1987

Dr. John A. Edgren, Associate Professor of Economics, Eastern Michigan University, testifying on behalf of the Recycle Ann Arbor program of the Ecology Center of Ann Arbor, Michigan

This testimony is an attempt to respond to the several questions posed by the committee. To some extent the answers are in a different order than the questions; several questions have been grouped together and covered with a single answer; some questions are relatively slighted, emphasis resulting from limitations of space and information.

## I. INTRODUCTION - Existing ways to reduce volume or toxicity of waste.

Broadly there are six methods of dealing with solid wastes. The first five can involve some reduction in either volume or toxicity. They are

a. waste reduction,
b. source separation with separate disposal of toxics, and recycling or reuse of other components,
c. composting,
d. separation of recyclables from mixed trash at the disposal site,
e. incineration with energy recovery, and
f. landfilling.

An integrated approach to solid waste management involves using an appropriate mix among them. These alternatives are listed in decreasing order of their social and environmental desirability. There is a strong presupposition that the first three or four are substantially more desirable than the last two, though there is undoubtedly some role for all of them. There is a vast array of existing techniques and methods within each category; an exhaustive enumeration is not feasible here.

The following material concentrates on the first three. Since the experience of the Ecology Center of Ann Arbor's Recycle Ann Arbor program is in source separation and curbside collection of recyclables, it is that type of program that is given most emphasis. Section II below acknowledges the complex problem posed by toxic contaminants in solid waste and briefly explores sources of it. Section III analyzes problems that exist with waste reduction programs or with programs featuring source separation and recycling. It explores principle impediments to the successful reduction, recycling, or reuse of various wastes. Section IV looks at policy initiatives that would be helpful in dealing with some of these problems; an attempt is made to distinguish appropriate federal and state roles.

## II. SOURCES OF TOXIC CONTAMINANTS

Principle sources of toxic contaminants in ordinary municipal solid waste include small business establishments using toxic substances (*inter alia* dry cleaners, automotive repair facilities and other machine shops, gas stations, print shops, photographic studios and other artists' workshops, plating facilities, medical facilities, laboratories) and ordinary households. Many of these generate small volumes of toxic or hazardous waste. Safe disposal is expensive and difficult. Many of the people

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involved are poorly informed about the hazards. Therefore they put their wastes in the garbage. In aggregate it is a significant amount, particularly since very small traces can be a serious contaminant in the environment. Another source of the problem is, of course, illegal disposal from larger businesses that know better but are trying to cut corners on costs.

## III. PROBLEMS AND IMPEDIMENTS TO WASTE REDUCTION, SOURCE SEPARATION, AND RECYCLING

### A. INTRODUCTION

There is one principal impediment to successful source separation of hazardous, toxic or other wastes and to reuse, recycling or other proper disposal of them: most programs doing these things are shoe string operations. The people trying to do the recycling are trapped by a set of market circumstances they cannot control. These problems undermine their best efforts to mine the waste stream for useful materials, conserve resources and reduce the need for landfills. These organizations survive only because they are heavily subsidized. In the case of Recycle Ann Arbor, for example, subsidies come from four sources:

a. the City of Ann Arbor gives operating and capital grants,

b. the State of Michigan has given large capital grants and one-shot project oriented operating grants,

c. foundations have given grants for educational work and a few other projects,

d. the people who work there are paid substantially less than they could receive elsewhere; a good deal of work is done by volunteers; every attempt is made to obtain professional services on a pro bono basis.

### B. REVENUES, COSTS, AND NET REVENUES

The reason large subsidies are necessary is obvious on an elementary level. First, revenues are low.

1. The materials collected, when sold, bring a low price.
2. For the most part those generating the waste do not pay recyclers to collect it.
3. In addition revenues are highly volatile, since prices for recycled goods commonly experience violent fluctuations.

On the other hand costs are high; the material is expensive to collect and process in spite of low salaries in the industry.

1. Large pieces of expensive equipment are needed. Labor intensive methods in lieu of modern equipment increase cost tremendously.
2. The available equipment is poorly designed for recycling operations. Inappropriate equipment leads to inefficient operations.
3. Low pay leads to rapid staff turnover with all of the inefficiencies that entails.
4. Valuable residuals from production are separately sold by the firms generating them and thus do not end up in the solid waste stream. Residuals in the waste stream are generally there because they have high processing or handling costs, or low prices as commodities.

Revenues being low and costs being high, net revenue is negative. If recycling operations are to stay open they must be subsidized.

Why are revenues low and costs high? One answer lies in economic analysis. Markets, the rational self-interested behavior of maximizing individuals in a free enterprise environment, produce these low revenues and high costs. The problems flowing from negative net revenue produce many impediments to the successful source separation and recycling or reuse of the solid waste stream. Once we understand how markets affect costs and revenues we can better understand how policy initiatives can help.

## C. FACTS ABOUT MARKETS, SOURCE SEPARATION, AND RECYCLING

1. As a rule waste generators do not pay enough for the disposal of trash in landfills or incinerators. Significant costs are left out of account. Additionally, the waste generator does not have to pay extra dollars to dispose of extra waste.

The costs left out are (as economists term them) external costs. They measure damages that arise when the inevitable environmental contamination occurs. It is difficult to assign a dollar value to these cost, but it is also difficult to imagine that they are trivial, or even small. (They tend to generate disproportionately great political reaction because they are not uniformly distributed. Those affected form a self-conscious interest group vocal in it own defense.)

In many cases local governments cover disposal costs out of general tax revenue. This encourages waste. First, within a fairly wide margin the cost to me as a waste generator of disposing of an extra unit of waste is zero. It costs me virtually nothing to put an extra bag out by the curb. Second, as waste volume expands I may eventually pay higher taxes, but I may not understand the reason for the tax increase, and if I do the tax cost to me is the cost of disposing of the average unit, not the cost of the marginal unit. With rising disposal costs, the cost of the marginal unit represents the true cost of disposal, and is the price that I should be forced to pay.

Clearly, the generator of waste pays a small part of the true cost of disposal in incinerator or landfill. Rational, maximizing, self-interested individuals will not source separate because to do so would cost them something and save them nothing. They will not pay recycling organizations to collect their recyclables because they have already paid an unavoidable charge for trash collection. Even if recycling would avoid the trash collection charge they would be willing to pay very little for recyclables collection because trash collection charges are very low. People will source separate and recycle only in so far as they are willing to sacrifice their own profit or benefit to further the ideal of environmental quality. It is the *ideal* rather than the *fact* of environmental quality that is served because we all recognize that any single person's contribution one way or the other is essentially nil.

2. The waste stream will always contains only low value residuals. Residuals from production or use are the property of the generator until disposed of. If there are relatively large quantities of a homogeneous

Copied both sides single spaced with narrow margins on recycled paper to conserve resources residual which can be processed, handled, and transported relatively cheaply, and which can find a use in some other production process, then informed maximizing individuals will tend to establish market relations and exchange that residual as a commodity at a mutually agreeable price. Examples abound. Large quantities of different types of paper residuals change hands through waste paper markets every year. An extensive system of brokers, trade associations, standard contractual language, and so on has grown up around this group of markets.

In general, residuals entering the waste stream suffer from either or both of two disabilities. They may have little value as inputs to other production processes (e.g. they command a very low price as commodities). Alternatively they may be expensive to process, handle, or transport. In general what will be left in the waste stream is small quantities of nonhomogeneous residuals that require expensive processing to be reused.

3. In the markets for recyclables derived from the waste stream, buyers and sellers are unresponsive to price incentives. Consider those who use mixed paper as a production input. A typical unit of their output contains a relatively fixed proportion of mixed paper fiber. If mixed paper becomes cheap that proportion doesn't rise, if it becomes expensive that proportion doesn't fall. Within the observed range of variation in these markets over the last few decades that appears to be true. In economic jargon we say that demand is price inelastic. Supply also appears to be price inelastic. Inelastic supply and demand characterize the markets for many recyclables. Numerous econometric studies attest to this.

One implication is that prices will fluctuate violently. If a building boom shifts out the demand for building papers (which use mixed paper as an input) that high demand working against a relatively fixed supply will drive the price of mixed paper way up. Conversely, if supply expands against a relatively fixed demand, the price will be driven way down.

In theory rational economic agents confronted with a highly volatile price will take steps to insulate themselves from the adverse impacts of it. When the price is high sellers will accumulate financial reserves, which they can draw down to tide themselves over periods when the price is low. When the price is low buyers will if possible accumulate inventories (size depending on storage costs), which they can use when the price is high. Steps of this kind require knowledge of expectable fluctuations, a surplus in good years to finance the accumulation (or access to efficient capital markets to borrow the necessary funds), the discipline to avoid excessive optimism and expansion in good years, and other virtues of a similar sort. In some volatile markets, large price fluctuations will attract speculators who will establish futures markets the operation of which will tend to dampen price fluctuations.

Recycling organizations are unable to protect themselves adequately from the effects of price volatility. First, high labor turnover means that planners often lack accurate information about price volatility. Second, recycling organizations move from small losses in good years to large losses in bad ones. Consequently they find it extremely difficult to fund reserves and impossible to borrow capital funds from banks or others (who are, perhaps understandably, concerned about prospects of repayment). It is very difficult for them to avoid purchasing desperately needed equipment or supplies, or granting modest wage increases, when the funds are there. Thus, third, many recycling organizations go under in bad years, then rise from the ashes like a phoenix when prices improve. This on-again off-again pattern makes it difficult to develop stable sources of supply of recyclable materials. Even if waste generators are willing to source separate rather than landfill, they may find themselves periodically forced back into the more usual disposal process. Such flipflopping must be costly to source separators and add to the costs of recycling. Fourth, markets for commodities recycled from the waste stream have been, one supposes, too thin to support development of an active futures speculation.

An ominous implication of these low price elasticities is that a policy strategy fostering large increases in supply without any attention to demand will dramatically increase the need to subsidize recycling organizations. Absent the subsidy they will go under, and the supply fostering strategy be frustrated.

4. Processing and handling of source separated materials by recycling programs is likely to be technically inefficient. For any organization operating in any market its costs of production can be divided broadly into costs of acquiring capital (plant, equipment, and the like) on the one hand, and short run operating costs (mostly labor costs) on the other. Market realities create large problems for recycling organizations in both of these areas. Problems of capital acquisition will be addressed here, labor problems under number five, immediately below.

Equipment is needed to process recyclables. Such equipment is not expensive as such things go (bailers, trucks, forklifts, etc.), but to recycling organizations it is very expensive indeed. They can't fund acquisition from current revenues, which do not even cover current costs, and given their prospects are unable to borrow the money in capital markets. Recycling organizations are forced to minimize equipment use (using labor instead), and to use old, decrepit, outmoded equipment which they can acquire cheaply. Some things they simply don't do, lacking the necessary equipment. Therefore their operations are inefficient; they are also risky to employees. Both increase costs of recycling.

Lack of demand for recycling equipment has further implications. Equipment manufacturers find no incentive to develop specialized trucks, materials handling, or processing equipment for recycling. A little ingenuity here could reduce costs substantially. For example one could minimize the number of trips that collections vehicles have to make. The vehicle should preserve the source's separation of six to ten distinct types of item, have flexibility as to the amount of each item, produce high densities for efficient transport, and so on. Achieving this is a technical problem that could be solved with available engineering methods. Equipment firms have no incentive to solve it because few sales are probable. The use of inappropriate equipment makes recycling inefficient and expensive.

5. Use of labor and other variable inputs are also likely to be adversely affected by market considerations. In choosing where to work people pay attention to how well off they are likely to be. Those who choose to work in organizations separating, collecting, and recycling materials from the

waste stream generally do so either because they have no better paying options available, or because they have a strong commitment to the values of environment purity and resource conservation. Negative net revenues force very low pay, thus those with no alternatives are generally unskilled and not very efficient in production. The idealists are generally young and inexperienced. They spend a year to two working in what amounts to an informal National Service position, but it is clearly not reasonable for them to continue for any length of time. There is no opportunity for advancement is a small organization. Part of the work is physically demanding and not intrinsically interesting. Part of the work involves planning and administration, but given resource constraints it is time consuming, emotionally demanding, and ultimately frustrating. As noted above, the work may be somewhat risky. It is not feasible in the long run to support a family on the income involved, buy a house, send children through college, etc. Employee morale is low. Having served a time they quit and go back to school or take more conventional jobs, perhaps trading on the experience they have acquired. The behavior of rational, maximizing, self-interested people virtually guarantees high labor turnover rates and a permanently low skill, low experience, inefficient labor force. A few exceptionally motivated people persist and make the organization work.

Given tight budgets, the acquisition of other variable inputs is likely to be inefficient too. Purchase in bulk, for example, is out of the question.

## D. MARKETS AND WASTE REDUCTION

Market relationships also have a lot to do with the viability of waste reduction as distinct from recycling or reuse. Since each person does not pay the full cost of disposing of his or her own waste, people do not pay much attention to disposal costs in deciding what to buy. Since final purchasers ignore disposal costs manufacturers can too. They pay little heed to problems of disposal in designing and packaging their products. The result is that a substantial part of the nonrecyclable waste stream is packaging waste. It is also hard to recycle the component parts of consumer products after their useful life is done. Were consumers to face high costs for nonrecycled disposal then competitive pressures will force manufacturers to design products and packaging easily recycled.

Product obsolescence is a much knottier problem. Dr. William Baumol has presented in several different places an idea that he calls the "cost disease of the service sector." Essentially, the pace of productivity change is set in the manufacturing sector, which tends to dominate the economy. People whose income derives from providing services face a problem. They cannot increase their productivity much. Therefore they can either accept low wages or charge high prices for their product. Repair services are an example. The result is that the repair of household products has become increasingly expensive. The solution is either durable commodities that do not need repair (very expensive to manufacture) or throwaway commodities. Of course it is the latter that appeal to the mass market.

There are other roots to the problem of rapid product obsolescence. Highly concentrated oligopolistic consumer goods firms find it advantageous to compete through continual product innovation. It reduces the need for price competition. It continually stimulates sales and therefore supports revenues. Consumers lack time or ability to critically evaluate the wide range of sophisticated products that they buy. Beguiled by claims of technical improvement in the product they readily dispose of older models and acquire never ones.

It is hard to see how any relatively simple policy could deal with the problems of high repair costs and planned obsolescence. The material below focuses on policy initiatives that are feasible and relatively simple.

## IV. FEDERAL AND STATE POLICY INITIATIVES

Possible policy initiatives are listed below. Some are briefly analyzed. No attempt is made to establish the relative desirability of these ideas. No attempt is made to be concrete about how they would be implemented. It is too early to be concrete. There are too many unspecified parameters. The relative merit of the various possibilities depends on their role in some overall, as yet unspecified package. As to Federal Vs State role in policy, broadly state and local governments are responsible for setting disposal fees and in other ways directly administering the disposal process. The federal government, on the other hand has the ability to alter broad, economy wide market relationships through the tax (and perhaps subsidy) powers available to it.

1. Each generator disposing of waste should be charged the full marginal cost of disposal, especially when disposing of things to landfill or incinerator. This would be a state and local government policy. Guidance and encouragement from the federal level is possible. It would be desirable to implement this universally to avoid a competition in under charging (to "improve business climate") among states. How large the charge should be is a matter of conjecture. How large are the external costs? How much political flak are you willing to take from the tax lobby to reduce political flak about landfill siting? Some variation among states might be desirable depending on how serious their solid waste problems are. At the very least regulations governing construction, operation, and post closure monitoring of landfills and incinerators should be tough enough to greatly reduce risks of pollution. If tipping fees cover only these costs they will be high, but they should be enough higher to allow creation of liability insurance funds to pay for damages when these occur. High charges risk increased illegal disposal. The policy would have to be accompanied by vigorous enforcement to avoid this problem.

Desirable effects would be many. People would reduce waste to avoid the cost. Funds raised could finance other initiatives. Recycling organizations could charge to collect source separated recyclables since the alternative would no longer be cheap. With additional stable revenue recycling organizations could improve efficiency: negative net revenues drive markets to create problems; positive net revenues drive markets to create solutions.

2. A second possibility is for the federal government to institute an appropriate set of excise taxes favoring recycled goods. The taxes should be scaled to increase as the percentage of virgin material contained in the

taxed product increases. Alternatively, they could be scaled to decrease as the percentage of recycled inputs increased. Such taxes could be instituted independently, or could be included in a value added system. They could be phased in to minimize employment and production dislocations. They could raise funds to finance other initiatives, or alternatively, be revenue neutral.

The proposal raises a great many questions which are not answered here. How would it be administered? How enforced? What products should be covered? The intent would be to alter the profitability of various activities, guiding behavior in environmentally sound directions. Since packaging wastes form a substantial proportion of the nonrecyclable waste stream, packaging inputs would be an obvious target. However, there is no reason why other consumer goods could not be similarly taxed. To pick an example at random, sofas use a wide variety of fibrous material in their construction. There is no reason why that fiber should not be recycled fiber.

The point of this set of taxes would be to greatly increase the demand for recycled materials. As localities try to solve waste problems by recycling there will be an expansion in the supply of recycled materials. Absent an increase in demand there are going to be real problems. Demand is price inelastic. A declining price will not stimulate use. Greatly expanded supply will drive price to near zero. The proposed taxes would seek to shift out demand, averting the problem.

Recycling organizations would (at least initially) find themselves better placed since they would receive higher prices for their product. However, it is possible that with higher demand and increased prices some residuals currently disposed of would find private markets and be taken out of the waste stream. This is highly desirable. It would, however, make them unavailable to recycling organizations.

As an additional benefit such taxes would reduce demand for virgin materials and lessen the conflict between environmentally desirable use of natural resources and relatively destructive harvesting or extraction. Excise taxes could also be selectively imposed to raise funds to research adequate disposal techniques; the case of automobile tires comes to mind.

3. Federal, State, and Local governments should require purchase of products made from recycled materials. Some states and some agencies have programs to this effect all ready. A concerted effort would have a large impact in the markets for recyclables. Critics of this proposal may allege poor quality or higher cost for goods made from recycled materials. However, quality need not be less in most applications, and many products made from recycled materials are no more expensive than their virgin material counterparts. At any rate, expanded volume should allow economies of scale in production, bringing costs down. It would be desirable to phase in such a program, because sudden large increases in demand could easily outstrip existing capacity.

In a similar vein specification of contracts let by government could include a requirement to purchase products made from recycled materials.

Purchase requirements would have an effect on demand similar to excise taxes as outlined above.

4. A national bottle bill is desirable. Deposit-refund schemes for beverage containers have been enacted by several states. Uniform national requirements across all states, with a substantial deposit and all containers covered (plastic bottles, liquor bottles, wine coolers, etc.) would be very helpful. It should emphasize standardized refillable containers. It would substantially reduce the size of the waste stream. It would help greatly with litter problems. Lord help us, it even provides some assistance to the urban poor! Unclaimed deposits form a substantial fund which can be used to implement other environmental programs. There may be some costs to retailers and the beverage industry, but studies indicate that there are no negative employment or production effects. In general the charges can be easily justified as a textbook case of internalizing negative externalities.

The principle repays study. It may well be that a deposit scheme to encourage recycling of other consumer commodities would also be desirable. I believe the Swedes have instituted one for automobiles.

5. Household and small quantity commercial hazardous and toxic wastes should be source separated, collected through community programs, and reused, recycled, or properly disposed of in hazardous waste facilities. Important questions are who controls these programs, and how are they funded? A number of communities around the nation have experimented with hazardous materials collection days. In Ann Arbor, Michigan these have been done as joint operations of the Washtenaw County Health Department and the Ann Arbor Ecology Center. Many people with technical expertise from the University of Michigan, Eastern Michigan University, the City of Ann Arbor, and elsewhere have assisted on a volunteer basis.

Information from the Ecology Center distributed to facilitate household separation of toxics and safe disposal of them is included as an appendix to this testimony.

Doing this sort of thing episodically with little funding, and volunteer labor, is not desirable. To do it widely and regularly with adequate community information and education is likely to be expensive, but it is difficult to see how else to remove toxic and hazardous wastes from the municipal waste stream. A reasonable source of funding would be an excise tax on the products that require such special handling: paints, solvents, and so on. It seems likely that such an excise would need to be large. Its effect on product price would then go a long way toward encouraging firms to withdraw the products from circulation or research ways to reduce the hazard that they pose. Government research assistance would not be an unreasonable adjunct to such a program.

6. Products and packaging should be designed to facilitate recycling. There are two cases here. First, materials could be indelibly labeled to facilitate identification. For example, recycling of plastics is stymied because they are diverse, antagonistic when combined improperly, and impossible to identify easily. If they could be divided into compatible classes and color coded with a small patch in some inconspicuous place

their separation for recycling and reuse would be greatly facilitated. This particular example may not be technically feasible. The point is that some ingenuity expended in the design phase could greatly simplify later problems. Second, products and packaging are often impossible to recycle because incompatible materials are bonded together; plastic coated paper is an example. It may be that some of this is reasonably necessary. It is likely, however, that engineers and advertising specialists have chosen to do it with no thought to eventual recycling, and that desirable recyclable alternatives could be easily discovered.

Proposals outlined above would encourage the development of engineering alternatives. If disposal is expensive firms will design their products and packaging to facilitate disposal or risk loss of sales. If residuals command a high price, firms will design their products to facilitate residuals extraction. At the same time a proper role for government may exist in funding research into packaging or product design, and in disseminating information about alternatives. Funds raised through taxation above could be devoted to this purpose. Both federal and state authorities could pursue programs of this kind.

7. Policies to reduce violent price fluctuations in recycled materials markets might be helpful. As noted above large price fluctuations pose problems for both recycling organizations and for those who buy their materials. Uncertainty is introduced making decisions difficult. A number of nations (the Netherlands, for example) have experimented with establishing buffer stocks of recyclables. The government buys e.g. wastepaper when prices are low, stores it, and sells when prices are high; over the long term the average inventory would be stable and relatively small. This activity reduces price fluctuations, stabilizes the flow of recyclables, and should thus facilitate use. Whether the benefits are worth the costs is an open question. A similar objective could be served by encouraging the establishment of private futures markets in recyclable commodities.

8. Since a major impediment to efficiency in the handling of recyclables is lack of adequate capital equipment, some government role in fostering the supply of capital would be helpful. This could come from either Federal or from State governments. Direct grants or loan guarantees are possibilities. A large program of this sort would be inadvisable in the absence of a strong program to stimulate demand for recycled materials. Funding could come from recycling related taxes as outlined above. Given the labor problems of recycling organizations there is some reasonable question as to the degree to which capital equipment would be used efficiently. Would it provide benefits commensurate with its cost? There are many questions that need to be answered on the way to instituting such a program.

9. A program at the federal level funding research into the design of equipment appropriate for recycling might be useful. As was noted above, improperly designed equipment reduces efficiency in recycling. Federal research funds might be able to help solve this problem.

10. Many other suggestions exist as to possible government programs to assist recycling. A few will be mentioned here without such discussion to indicate the kind of thinking that is going on in the environmental community in Michigan. Government should:

- Sponsor research on repair and reuse of discards.
- Eliminate all subsidies to use of virgin materials in products.
- Impose strict standards for waste disposal facilities, with states and localities allowed to establish standards stricter than federal ones should they choose to do so.
- Emphasize waste reduction as a principle objective.
- Encourage public participation in planning, siting, and operation of facilities in every possible way.
- Use mandatory resource recovery techniques including mandatory source separation of wastes.
- Undertake large community education campaigns to encourage waste reduction, source separation, reuse and recycling.
- Undertake many waste stream assessment studies to identify ways to recycle, reuse, compost.
- Foster frequent and convenient curbside pickup as the preferred mode of collecting source separated recyclables.
- Encourage environmentally safe householder composting of kitchen, lawn and garden wastes; municipal composting is also desirable.
- Publicize costs of disposal and savings from recycling.
- Limit incinerators to a size that will use only that part of the waste stream left after the fullest possible exercise of waste reduction, reuse, recycling, and composting.
- Produce refuse derived fuel as preferable to incineration.
- Tightly control incinerators as to air pollution, bottom and fly ash disposal, presorting of materials to prevent harmful emissions, thorough monitoring over the whole range of possible emissions with public accessibility for the monitoring record.
- Enforce all relevant environmental laws and regulations vigorously.

Sources:

1. Baumol, William, Macroeconomics, HBJ, New York 1985.
2. McCabe, Loch, "Financial Analysis of Recycling Operations Conducted by Recycle Ann Arbor FY 1985-6", Recycle Ann Arbor, Ann Arbor Michigan (mimeographed draft), 31 August, 1987.
3. Michigan Environmental Council, "Summary of Member Positions of Solid Waste Management", (mimeograph), 1987. The material is drawn from information supplied by East Michigan Environmental Action Council, West Michigan Environmental Action Council, Upper Peninsula Environmental Coalition, Tip of the Mitt, and Michigan Chapters of the Sierra Club and the League of Women Voters.
4. Moreland, Kemper (coauthor with J. Edgren) "The Market for Wastepaper", presented at the 1987 meetings of the Midwest Economics Association, St.Louis Mo.

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## A BRIEF DESCRIPTION OF THE ECOLOGY CENTER AND RECYCLE ANN ARBOR

The Ecology Center of Ann Arbor Michigan was established in 1970 as a result of interest generated by the celebration of Earth Day.

It is a community based environmental organization, having a large membership in the Ann Arbor area. It supports a number of distinct programs. It manages a lending library of books and periodicals on environmental topics and maintains extensive files of related materials. It has an environmental education program which has developed curricula for areas schools, and which is participating in planning, developing and managing an Ann Arbor City Parks environmental facility. It has a long history of active environmental advocacy on the local and to some extent the state level, and at one time or another has concerned itself with local land use and transportation planning issues, with air and water pollution issues, with atomic energy, with toxic and hazardous pollution , and with others problems. The Center currently offers two service delivery programs. Energy Works is concerned with energy conservation and has been particularly active in low cost, no cost conservation techniques for low income families. Recycle Ann Arbor is the Ecology Center's current expression of a long term interest in recycling issues.

Recycle Ann Arbor was established in 1978 as an independent non profit organizations meant to demonstrate the feasibility of curbside recycling. It chose a neighborhood comprising about 10% of the city as a demonstration area. In 1982 Recycle Ann Arbor merged with the Ecology Center. With substantial subsidy of operating costs by the city the program has expanded so that free curbside recycling pickup is now available throughout the city. In 1985 RAA served an average of 20,000 households per month, collecting a total of 2200 tons of paper, cardboard, glass, and metals. Its operating budget is approximately $200,000 per year.

October 7, 1987

From: Dr. John A. Edgren, Associate Professor of Economics, Eastern Michigan, Member of the board of directors of the Ecology Center of Ann Arbor.

To: Senate Committee on Environment and Public Works, Subcommittee on Hazardous Wastes and Toxic Substances.

RE: Submission of post-hearings comments for inclusion in the hearing record.

The following material is a collection of post-hearing comments that react to and analyze statements made by other participants or that amplify or clarify statements of my own. I am asking that it be included in the hearing record, as I understand that the hearing record is open until October 11, 1987.

If there is any way that I can be of further assistance please feel free to let me know.

# POST HEARING COMMENTS
for
SENATE
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
SUBCOMMITTEE ON HAZARDOUS WASTES
AND TOXIC SUBSTANCES

John A. Edgren
Ecology Center of Ann Arbor
Eastern Michigan University

October 7, 1987

The basic problem was capably summarized in brief compass by Senator Baucus in his opening statement. In comments here I would like to give an extended answer to the last question Senator Baucus asked of the first Panel, namely, "If we increase costs of disposal, wouldn't that work? Why do we have to do anything else?" I would also like to respond directly to some comments by other participants.

## I. Response to question

### A. Most Basic Principle: Requiring people to pay the full costs of disposal would indeed help a lot to correct the problem.

1. It would substantially increase the subsidy to recycling operations that is possible and justifiable on the basis of cost-avoidance.
2. It would force consumers to consider disposal costs in making purchase decisions and therefore force manufacturers to consider disposal costs in designing products and packaging.
3. It would increase the ability of recycling operations to earn revenues by charging for pickups, increasing their efficiency and extent of operations.

Addendum to MBP defining "full costs" and discussing correct assessment of charges:

1) "Full costs" include
   a) all operating expenses (wages and salaries at reasonable market rates of pay, etc.),
   b) all capital costs (depreciation on equipment cost, and interest on the funds tied up), plus
   c) all external costs. The latter category is tricky. The facilities must be designed (and consequently incur dollar costs) in such a way as to
      i) minimize local disamenities associated with landfills, incinerators, or other disposal facilities: blowing papers and plastic, odors, traffic, noise, appearance, etc.;
      ii) reduce very substantially the risk of pollution: air pollution, dust, surface water

and ground water contamination; there must be very carefully drawn closure requirements, post closure monitoring requirements. A universal application and vigorous enforcement of the more stringent types of landfilling regulations would go a long way toward accomplishing these two requirements for landfills. Comparably stringent requirements need to be formulated and enforced for other types of disposal facility, e.g. incinerators.

iii) Beyond even that there should be included in disposal fees, first, a charge to be used for compensation of area residents for unavoidable disamenities, and second, a charge (essentially an insurance premium) to build up a fund to cover damages and reclamation when the almost inevitable pollution finally occurs. Pollution is inevitable because of the durability of many of the pollutants, and because of the untried nature of much of the technology created to meet the new regulations. Clay liners are used, but there is some indication that they may interact with pollutants in such a way as to increase their permeability, plastic liners seem inevitably to leak, and so on, ad nauseam. An insurance fund of this sort is the only socially responsible way to handle the problems involved. The private insurance industry had a go at setting up such coverage (Environmental Impairment Liability Insurance, EILI). The collapse of this segment of the insurance market has been a major fiasco, and as the representative of the secondary lead smelters noted, many of his association's members cannot obtain such insurance. Perhaps it is time for a federally managed fund (patterned after the Federal Deposit Insurance Corporation, for example).

2) It is not sufficient merely to be sure that someone, somewhere pays (though that would help). For the increase in charge to be really effective, each waste generator must be charged a price for disposal that measures the true cost of disposing of that last unit of trash generated. Disposal fees to each generator should reflect marginal costs of disposal. Only in this way will each generator take adequate account of disposal costs in making his or her decisions about purchases or disposal methods.

3) How do we accomplish the required alteration in methods of paying given the current (constitutionally sanctioned) division of labor between federal, state, and local governments? Federal authorities may have to rely on indirect carrot and stick type methods (for example, giving or withholding federal grant money). It may be difficult as a practical matter for the federal government to force a

full implementation of the required changes in disposal fees, especially since the size of the required fee would vary with local conditions. In the face of difficulties of this sort an excise tax on virgin materials content as discussed below could be used.

B. Second Most Basic Principle: Charging full cost for disposal will not solve the problem in and of itself.

First, hazardous materials from households and small businesses must be source separated and separately collected. Merely charging full cost for disposal of the typical unit of waste provides no incentive for such source separation. There has to be some differential incentive to reduce use of toxics and encourage their source separation. A high price for the responsible products coupled with some recompense to the disposer who source separates would provide such an incentive.

One way to create the required selective price differential efficiently is through use of an excise tax on hazardous products. Alternatively one might consider creation of a deposit-return scheme for hazardous materials containers. Unlike beverage container deposits, for hazardous materials containers one would be encouraged (perhaps paid) to return unused portions of the material with the container. A stiff deposit would generate a handsome incentive to source separate and return for recycling or safe disposal.

Second, increasing disposal costs will not in itself increase the demand for products made from secondary materials. Therefore there will be no increase (outward shift) in the demand for secondary materials by the firms that use them as inputs. An increase in disposal costs will increase (shift out) the supply of secondary materials. Demand and supply are price inelastic, in some cases extremely so (wastepaper, for example). Therefore, the price of secondary materials will fall, perhaps to very low levels. This will have little tendency to increase use of recycled inputs (demand is price inelastic).

To the contrary, low prices will drive secondary materials suppliers out of business, shifting the supply back and reducing or eliminating some of the beneficial effects of charging full costs for disposal. Alternatively, large subsidies will have to be made (probably by state and local governments) to recycling firms or nonprofit recycling organizations to keep them in business.

One will run into this same constellation of difficulties if piecemeal state and local initiatives shift out supply of secondary materials through subsidies or other encouragements to recycling, as they appear to be doing now. Several of those testifying in the hearings mentioned fear of this or examples of it happening. The Ecology Center of Ann Arbor has ceased collecting gray cardboard (e.g. cereal boxes) because there is no market for it. We currently subsidize the collection of tin cans, since it costs more to ship them than we can get for them.

The way out of this problem is to institute policies that shift out demand for recycled products and thus for secondary materials inputs to the production process.

1) Change government purchase specifications.

2) Change specifications in government let contracts. The government has a large impact on demand in the market, since it is a large purchaser. Government is free to specify any socially desirable preference among the commodities it buys. In the present context it would seem obvious that it is socially desirable for government to express a preference for recycled goods.

3) Impose excise taxes selectively increasing the price of final products proportional to the degree to which they are made from virgin materials. A company using, for example, packaging, confronted with this changed price differential, would tend to buy recycled. This would mean that the supplier (e.g. the paper mill, steel mill, etc.) would find the demand shifting out for those parts of its product line made with recycled inputs, in for those made with virgin inputs. If the mill maximizes profits it will change the composition of its outputs, and therewith the composition of its inputs. The demand to those extracting recycled materials from the waste stream will shift out, supporting prices, and making it viable for private markets in these materials to develop and thrive. There is a further justification for an excise tax scheme of this sort. Virgin materials extractors do not pay costs that adequately compensate for the loss of environmental amenities and recreational potential that their activities impose.

4) Eliminate government subsidies to producers and users of virgin materials. Currently, there are significant government subsidies or encouragements to the use of virgin materials in the production process.

a) For example certain extractive industries can claim depletion allowances, accelerated depreciation, or can expense some capital expenditures in tax calculations which allow them to sell virgin materials cheaply.

b) Transportation charges may in some cases be higher for recycled goods than is necessary to compensate for cost differences.

c) As another example regulations may force labeling materials with the percent of virgin materials content when that information has no bearing on the safety or usefulness of the product. This constitutes misinformation to the public and reinforces and exacerbates an unreasoning aversion to goods made from secondary inputs. Eliminating implicit and explicit subsidies to virgin materials would force up the price of them relative to secondary materials and encourage recycling.

A third reason that full cost charges may not be sufficient to solve solid waste problems is as follows. Increasing the costs of disposal will give incentives to dispose of trash through littering or through illegal dumping, a problem that is serious already. Part of this problem can be dealt with through energetic enforcement and education campaigns directed toward stopping these practices. Since an important component of the littering problem is beverage containers (of all kinds) an important additional initiative to contain littering would be a national "bottle bill." This could additionally give incentives toward refillable containers, reducing the need for energy imports and otherwise conserving resources. A national bottle bill would also help reduce the size of the waste stream.

II. Response to statements by other hearing participants.

In addition to the above comments I would like briefly to react to some statements made by other hearing participants in their testimony. First, there are a few broad recurring themes that need to be addressed. Second, there are a number of specific statements that raise questions.

THEMES, group one: A group of those testifying seem to express a set of common themes about desirable policy. They were: Louis Freeman (SPI), James Greco (BFI), Red Cavaney (API), A. Irene Schmidt (ALCOA), David Karmol (CMI). I will refer to this as "industry testimony." There are differences of emphasis among these, qualifications, reservations, or additional policy suggestions in some that are not in others, but there is a kernel of similarity. It involves three ideas:

1. The desirability of waste reduction (as distinct from recycling) is not stressed. Reducing the amount of packaging, redesigning products and packaging to minimize waste, encouraging reuse, or reduced purchases to reduce waste, possibilities like this are ignored or explicitly disavowed (Freeman, p. 10; Cavaney p. 6).

In contrast, environmentalists tend to put strategies of this sort first on the list as most desirable. The desirability of them is justified in part by the "materials balances" concept. According to this any substance extracted from nature as a resource will eventually find its way back as a pollutant; it is hard to disagree with this concept since it is simply a statement of a fundamental principle of Physics, the conservation of mass.

2. According to industry testimony incineration (waste to energy) in one form or another is generally seen as a highly desirable alternative for dealing with waste disposal problems. There are some reservations about possible conflicts with recycling (contrast Cavaney, p. 7 with Greco, p. 7), about the need for emissions controls (Freeman p. 8), about regarding it as a panacea (Greco, p. 9). But in

general it is repeatedly reemphasized as an environmentally sound and highly desirable method for dealing with a large part of the waste stream.

In contrast, environmentalists have grave reservations about incineration. They are concerned particularly about dioxins and furans from the combustion of chlorine in paper and plastic, and about contamination of ash residues with heavy metals and other toxics. These concerns are not adequately addressed by merely pointing to the fact that incineration has been in use in Europe for a long time. The critical question is, To what degree will adequate control of these problems increase the costs of incineration? Reuse of materials through recycling conserves energy (almost as much perhaps as could be extracted from burning) as well as reducing other environmental problems, and is consequently vastly preferable to merely burning. Environmentalists acknowledge that incineration may have a role to play as a volume reduction strategy but find it only marginally preferable to landfilling.

3. According to industry testimony there is at best a modest role for government, especially the federal government, to play in dealing with the waste disposal problem. There is a role for government in siting landfills and other disposal facilities over the objections of area residents (Greco, p. 12-13; Schmidt, p. 3; Cavaney p. 7). There is a role in educational campaigns, advertising to promote recycling, encouraging exports, encouraging economic growth, and, importantly, keeping out of the way of private markets in recycling (Cavaney, p. 10-12; Karmol, p. 4; Greco, p. 13-14). There is perhaps some need for subsidies: tax breaks, low interest loans, seed money (Cavaney, p. 8; see also Nord, p. 5) Beyond that there is little role for government mentioned.

In contrast, I believe that in order for the waste disposal problem to be solved in an environmentally sound manner the federal government must implement some important initiatives. The most important of these is that the demand for final products made from secondary materials must be expanded, and the tendency of manufacturers to make products and packaging that ignore disposal costs must be curtailed. To accomplish these tasks efficiently economy wide changes in prices and demands must occur. State and local governments cannot drive such changes. Only the federal government can. It is only reasonable that many businesses currently active in waste markets would resist such initiatives. It introduces substantial uncertainty into their situation and presages dramatic changes in established ways of doing business. Some will be winners, some losers, and they don't like the risk. Many will incur short run costs. But I think initiatives of this sort are needed to deal with the problems.

THEMES, group two: Representatives of the smelting industry, Michael Sappington (SLSA); H.A. Schlieper (ASARCO), provide an interesting contrast. Their basic position seems to be that smelting is much more desirable than incineration, and is an ideal form of recycling, but that firms in their industry are being driven out of business because of high costs imposed by a variety of unjustifiable environmental regulations (as well as the generally cyclical nature of the metals industry). I have no information as to the merits of the case against the regulations.

I would like to point out, however, that even if the high costs imposed by environmental regulations are justifiable, proposals to expand the demand for secondary materials above would allow an expansion of revenues to cover these higher costs, which would make firms in the industry economically viable once again.

THEMES, group three: At least two of the participants, James Greco (BFI), and Becky Nord (Midwest Paperstock), noted serious problems for their firms resulting from violent fluctuations in the price of secondary materials. In both cases these problems led to reductions in the amount of recycling. Violent price fluctuations of this kind are evidence that supply and demand are price inelastic, as stated above.

A proper role for government may exist in evening out such price fluctuations. Government can maintain buffer stocks of secondary commodities (as they do in the Netherlands) buying when prices are low, selling when they are high, thus evening out price fluctuations. Government should perhaps look into the possibility of encouraging the formation of futures markets in selected secondary materials markets. Futures speculation would improve the availability of information about probable future supplies, would encourage the formation of private storage and buffer stocks, and would provide participants in these markets with the opportunity of hedging their operations.

PARTICULAR STATEMENTS:

1) Irene Schmidt (ALCOA) and David Karmol (Can Manufacturers Institute): Both are impressed with the level of recycling achieved for aluminum cans, and draw from it various lessons about the virtues of " voluntary" approaches and industry led recycling efforts; there is an implicit conclusion that government involvement is perhaps not much needed. The question that I have is: To what extent are the high recycling rates for aluminum cans due to the existence of bottle bills in several large and populous states? Bottle bills have proven to be very effective at forcing the return of containers, and aluminum cans are covered in the bottle bills, at least in several cases. I do not have the numbers easily available to check but feel sure that

recycling rates in nonbottle bill states would prove to be much less impressive.

2) Red Cavaney (API): Evidence is cited purporting to show that government initiatives to reduce the volume of (e.g. packaging) wastes would not be effective in reducing the size of the waste stream. ...'"the average household in Mexico City discards 40% more refuse each day than the average USA household."' The reason cited for the 40% differential is that U.S. households discard less food debris because they use process-packaged foods. The difference in waste volumes is extremely improbable on the face of it. Have a great many low income households in or about Mexico City have been left out of account (are shanty town barrios outside the city limits?). Are we comparing high income urban Mexican families with the "typical" U.S. family? Aside from such questions, of course, the main point is that the refuse of the process-packaged food manufacturer has been left out of account; it is, after all, not "household waste", is it?

3) Lewis Freeman (SPI): Evidence is cited purporting to show that incinerators do not pose a dioxin threat (Freeman, p. 8-9). A long and impressive list of disinterested parties participated in a study of "combustion practices in solid waste incinerators." The only cited conclusion of this study was "...that there was 'no statistical relationship...between the amount of polyvinyl chloride (PVC) plastic in the garbage and levels of dioxins or furans after burning under good combustion conditions.'"

It is important to realize what this statement says and what it does not say. If read uncritically it appears to say that the study proves that PVC when properly burned does not create dioxins or furans! However, the phrase '"no statistical relationship"' means something quite different.

Technically it is an agnostic declaration. It says: we checked to see whether variations in the amount of PVC present in the garbage were positively correlated with variations in dioxins or furans in emissions from the incinerator. We were unable to find a positive correlation in our data that was large enough to justify the assertion that the correlation coefficient is greater than zero. In interpreting this statistical finding it is important to bear a number of facts in mind:

a. It does not say that dioxins or furans were absent from the emissions. Rather the reverse. It says that the level of them is not correlated with the level of PVC in the feed stock.

b. A causal relationship between PVC and dioxin may be present; there is merely no correlational evidence of it in the data. There are several possible explanations of why a large correlation coefficient was not found.

i) One possibility, the one the SPI would like us to believe, is that no causal relationship exists.

ii) Another possibility is that all of the garbage tested had about the same amount of PVC in it, so that, of course, as you look across garbage samples, the level of dioxin does not vary much either. Two near constants will yield a near zero correlation coefficient. Freeman refers to "a wide range of ... different types of refuse quality..." which appears to imply, but does not say, that there was variation in the level of PVC in the garbage.

iii) The most likely case is that the levels of dioxins and furans in the emissions were very small, and were therefore impossible to measure accurately, so that the dependent variable exhibits a lot of extraneous measurement error noise. Large noise variation in the dependent variable will produce a near zero correlation coefficient in spite of the fact that a strong causal connection exists. The kicker here, of course, is that very small amounts of dioxin are dangerous!

iv) It is possible that the level of formation of dioxins and furans when burning PVC may vary depending on what other things are burned at the same time. There may be (almost certainly are) complex interdependencies among the various chemical reactions that constitute "burning". It would not be surprising to find that what comes out depends on what went in. It may be that the sample as a whole shows no correlation between PVC and dioxins and furans, but yet in an important subclass of cases such a correlation exists.

Given the pedigree of the original study I would be surprised to find that the people who did it were not aware of these subtleties and difficulties (and others like them), or did not report them.

# TESTIMONY TO UNITED STATES SENATE
# SUBCOMMITTEE ON HAZARDOUS WASTES AND TOXIC SUBSTANCES

OCTOBER 1, 1987

BY

GARY BRIAN LISS
SOLID WASTE PROGRAM MANAGER

CITY OF SAN JOSE, CALIFORNIA

IT IS AN HONOR AND A PLEASURE TO BE INVITED TO TESITIFY BEFORE YOU TODAY REGARDING THE CITY OF SAN JOSE'S SOLID WASTE PROGRAM. THROUGH OUR PROGRAM WE HAVE SAVED OUR RATEPAYERS $65 MILLION OVER THE NEXT 30 YEARS, DEVELOPED THE FIRST MAJOR LANDFILL IN CALIFORNIA SINCE 1978, OBTAINED A 30 YEAR DISPOSAL AGREEMENT WITH A LANDFILL IN SAN JOSE, IMPLEMENTED THE LARGEST CURBSIDE RECYCLING PROGRAM IN THE NATION, AND ADOPTED AN AMBITIOUS $25 MILLION SIX YEAR WASTE REDUCTION STRATEGY TO REDUCE THE WASTES GOING TO OUR LANDFILLS BY 25% BY 1990. AS A RESULT, WE ARE VERY PROUD OF OUR PROGRAM AND HONORED TO SHARE OUR RESULTS WITH YOU TODAY.

YOU HAVE ASKED A NUMBER OF SPECIFIC QUESTIONS IN YOUR INVITATION TO TESTIFY. I WOULD FIRST LIKE TO RESPOND DIRECTLY TO THE QUESTIONS THAT YOU HAVE ASKED, THEN PROVIDE YOU ADDITIONAL INFORMATION ABOUT OUR PROGRAM AS AN ADDENDUM TO MY TESTIMONY.

## PROBLEMS IN SOLID WASTE

IN 1982, WHEN OUR SOLID WASTE PROGRAM WAS FIRST STARTED, THE MAJOR PROBLEMS THAT WE WERE EXPERIENCING WITH SOLID WASTE WERE:

- COLLECTION AND DISPOSAL RATES ESCALATING OUT OF CONTROL
- OUR LANDFILL THREATENED WITH CLOSURE IN 6-9 MONTHS; AND
- A NEW LANDFILL ELIMINATED BY A STORM OF CITIZEN PROTEST.

WE HAVE STABILIZED OUR RATES BY INSTITUTING A TRULY COMPETITIVE COLLECTION AND DISPOSAL SYSTEM. THE NEWBY ISLAND LANDFILL THREATENED WITH CLOSURE WAS ALLOWED TO EXPAND INTO ITS SECOND PHASE AFTER 33 ACRES WERE SETASIDE AS MITIGATION FOR LOSS OF WETLANDS. AND ANOTHER NEW SITE WAS IDENTIFIED BY THE CITY AND DEVELOPED BY THE PRIVATE SECTOR AS A MAJOR NEW LANDFILL SITE. THIS SITE WAS SUCCESSFUL IN BEING PERMITTED DUE TO THE STRONG CITY SUPPORT, ITS LOCATION IN A REMOTE AREA WITHIN THE CITY LIMITS, GOOD SITE GEOLOGY AND A COMPANY WHICH SPARED NO EXPENSE TO RESPOND TO EVERY REGULATORY REQUIREMENT AND ENVIRONMENTAL CONCERN RAISED REGARDING ITS DEVELOPMENT (INCLUDING THE PRESENCE OF AN ENDANGERED SPECIES - THE BAY CHECKERSPOT BUTTERFLY).

TODAY, THE MAJOR PROBLEMS THAT REMAIN ARE MORE LONG-TERM AND REGIONAL IN NATURE. ALTHOUGH WE HAVE A 30 YEAR DISPOSAL AGREEMENT, WE BELIEVE THAT A GROWING CITY OUR SIZE (POPULATION 719,000) SHOULD HAVE 50 YEARS OF DISPOSAL CAPACITY AVAILABLE TO IT. IN ADDITION, MOST OF THE CITIES IMMEDIATELY TO THE NORTH OF US WILL BE RUNNING OUT OF LANDFILL CAPACITY WITHIN THE NEXT TWO TO TEN YEARS. THEY ARE TURNING TO SAN JOSE FOR THEIR DISPOSAL NEEDS, AS WE NOW HAVE 80% OF THE DISPOSAL CAPACITY REMAINING WITHIN OUR COUNTY. WE THEREFORE ARE STILL VERY INTERESTED IN SEEKING ADDITIONAL LANDFILL SITES FOR OUR REGION, AGGRESSIVELY EXPANDING RECYCLING AND IMPLEMENTING WASTE-TO-ENERGY TECHNOLOGIES WHEN THEY PROVE TO BE ENVIRONMENTALLY AND ECONOMICALLY SOUND FOR US.

AS FEDERAL AND STATE REGULATIONS BECOME MORE STRINGENT REGARDING HAZARDOUS WASTES AND GOVERNING GROUNDWATER AND AIR IMPACTS FROM LANDFILLS, WE ALSO ARE INCREASINGLY FACED WITH CATCH 22 SITUATIONS WHERE THERE ARE NO REASONABLE DISPOSAL OR RECYCLING ALTERNATIVES FOR SPECIAL WASTES. A GOOD EXAMPLE OF THAT IS RESTAURANT GREASE TRAP WASTES. THESE ARE 90% WATER AND HAVE TRADITIONALLY BEEN DISPOSED OF IN LANDFILLS. WITH NEW REGULATIONS REQUIRING SUCH PRACTICES TO STOP, THERE IS NO OTHER PLACE FOR THESE WASTES TO GO, EXCEPT PERHAPS FOR ILLEGAL DUMPING DOWN STORMSEWERS. SIMILARLY, FEDERAL REGULATIONS REGARDING PCBS HAVE MADE THE RECYCLING OF BULKY WASTES AND 'WHITE GOODS" (E.G. REFRIGERATORS, WASHING MACHINES) UNECONOMIC FOR MOST SCRAP METALS DEALERS DUE TO THE MAJOR EXPENSE NOW REQUIRED TO TAKE OUT MOTORS AND INSULATION IN THESE ITEMS BEFORE RECYCLING.

ANOTHER MAJOR PROBLEM FOR THE CITY OF SAN JOSE HAS BEEN THE PROPER MONITORING AND CLOSURE OF INACTIVE LANDFILL SITES OWNED BY THE CITY. IN MOST CASES, WE BOUGHT THE LAND AFTER IT WAS USED AS A LANDFILL, TO BE INCORPORATED INTO CITY PARKS PLANS. UNFORTUNATELY, WE ARE NOW FINDING METHANE GAS PROBLEMS AT SOME OF THESE SITES, AND ARE ENCOUNTERING MAJOR COSTS FOR PROPER GROWNDWATER MONITORING PROGRAMS AND FINAL COVER REQUIREMENTS FOR THESE SITES TO BE CLOSED PROPERLY. AS THESE COSTS WERE NOT PLANNED ON DURING THE

OPERATIONS OF THESE SITES, THEY ARE MAJOR UNANTICIPATED COSTS OF THE SOLID WASTE SYSTEM WHICH ARE DIFFICULT TO ABSORB INTO OUR CURRENT VERY TIGHT BUDGET.

## RECYCLABLE WASTES

MOST MUNICIPAL SOLID WASTES ARE RECYCLABLE. IT IS JUST A QUESTION OF THE DEGREE TO WHICH THEY ARE TECHNICALLY AND ECONOMICALLY RECOVERABLE. THIS WILL VARY DEPENDING ON THE WILLINGNESS OF THE SOURCE OF THE WASTE TO SEGREGATE THE MATERIALS FOR RECYCLING, THE COSTS OF COLLECTION AND PROCESSING, AND THE MARKET PRICES FOR THE MATERIALS.

THE HIGHEST VALUED MATERIAL IN MUNICIPAL SOLID WASTE IS ALUMINUM (CURRENTLY OVER $1,000/TON). THE MATERIALS MOST COMMONLY COLLECTED IN CURBSIDE RECYCLING PROGRAMS ARE NEWSPAPER, BOTTLES AND MIXED CANS. ALTHOUGH CURBSIDE RECYCLING IS THE MOST EXPENSIVE WAY TO RECYCLE, IT IS ALSO THE MOST CONVENIENT AND THEREFORE MOST POPULAR WITH OUR RESIDENTS. BEYOND CURBSIDE RECYCLABLES, THE TWO MOST IMPORTANT WASTE STREAMS THAT COULD BE RECYCLED ARE COMPOSTABLES AND COMMERCIAL WASTES. IN SAN JOSE, ABOUT 25% OF OUR WASTES ARE YARD WASTES (TREE PRUNINGS, GRASS CLIPPINGS AND LEAVES). WE HOPE TO COLLECT THESE UNBUNDLED FROM IN FRONT OF PEOPLE'S HOMES IN A PILOT PROGRAM NEXT YEAR. IF THIS PROGRAM PROVES AS SUCCESSFUL AS ITS MODEL IN DAVIS, CALIFORNIA, WE BELIEVE THAT WE COULD RECOVER AS MUCH AS 15% OF OUR WASTE STREAM THROUGH OUR COMPOSTING INITIATIVES.

COMMERCIAL WASTES ARE ABOUT 50% OF OUR TOTAL WASTE STREAM. ALMOST HALF OF THESE WASTES IN OUR AREA ARE CARDBOARD BOXES. BY RECYCLING THESE, BUSINESSES COULD NOT ONLY SAVE IN THEIR DISPOSAL COSTS BY SELLING THE CARDBOARD, BUT THEY WOULD SAVE A LOT OF AIR SPACE IN THEIR WASTE BINS, DECREASING THE ACTUAL COSTS OF COLLECTING AND DISPOSING THE REMAINDER OF THEIR WASTES. ALTHOUGH THESE WASTES ARE HIGHLY DISPERSED THROUGHOUT THE CITY, THEY CAN BE RECYCLED DIRECTLY BY THE BUSINESS WASTE GENERATORS, OR THEY COULD BE HAULED BY SPECIALIZED RECYCLING FIRMS THAT ARE ABLE TO SORT SUCH WASTES BY HAND INTO THEIR VALUABLE COMPONENT PARTS (E.G. MARIN COUNTY AND BAY RECYCLING DO IN THE BAY AREA).

IN OUR AREA, WE ALSO HAVE SIGNIFICANT ASPHALT AND CONCRETE RECYCLING OPERATIONS WHICH RECYCLE CONSTRUCTION AND DEMOLITION DEBRIS INTO VALUABLE AGGREGATE AND OTHER PRODUCTS. WE ARE EVEN PLANNING TO RECYCLE MUCH OF OUR HOUSEHOLD HAZARDOUS WASTES, PARTICULARLY USED MOTOR OIL AND PAINTS.

THE ISSUE THAT REMAINS, THEREFORE, IS NOT SO MUCH "WHAT IS RECYCLABLE" AS WHAT DOES IT TAKE TO RECYCLE IT. THIS INVOLVES DECISIONS ABOUT DEFINING THE ECONOMIC VIABILITY OF RECYCLING TO INCLUDE CONSIDERATION OF AVOIDED COLLECTION AND DISPOSAL COSTS, AND PERSPECTIVES ON ABILITY AND WILLINGNESS TO ASSUME RISKS OF FLUCTUATING MATERIAL MARKETPLACES (E.G. WHERE DISPOSAL COSTS ARE SOARING OVER $100/TON ON THE EAST COAST, ALL OF A SUDDEN RECYCLING IS LOOKING VERY ATTRACTIVE WHERE IT DIDN'T IN THE PAST).

IN SAN JOSE, WE HAVE SET A NEAR-TERM GOAL OF RECYCLING 25% OF OUR WASTES BY 1990. ONCE THAT GOAL IS ACHIEVED, WE WILL REVIEW OTHER PROGRAMS THAT COULD OR SHOULD BE IMPLEMENTED THAT WOULD RECOVER EVEN MORE MATERIALS FROM THE WASTE STREAM.

HAZARDOUS CONSTITUENTS OF MUNICIPAL SOLID WASTES

IN MANY CASES, THIS IS A RELATIVE TERM. USED MOTOR OIL IS HAZARDOUS IF DUMPED DOWN THE SEWER OR IN BACKYARDS, BUT IT CAN BE RECYCLED VERY EFFECTIVELY. CHLORINE-BEARING WASTES SUCH AS PLASTICS AND PAPER WHICH MIGHT CONTRIBUTE TO DIOXYN FORMATION IN WASTE-TO-ENERGY PLANTS COULD ALSO BE RECYCLED IN MANY CASES. BATTERIES CONTAINING MERCURY COULD ALSO BE RECYCLED IF THERE WERE SUFFICIENT QUANTITIES OF THEM AGGREGATED TOGETHER TO WARRANT COSTS OF PROCESSING THEM. COMPREHENSIVE RECYCLING PROGRAMS PROBABLY COULD SIGNIFICANTLY DECREASE THE AMOUNT OF HAZARDOUS CONSTITUENTS THEREFORE IN MUNICIPAL SOLID WASTES.

PROBABLY THE MOST IMMEDIATE HAZARDOUS CONCERNS IN SOLID WASTES ARE LIQUIDS AND EXPLOSIVES THAT CONTINUE TO BE SAFETY HAZARDS FOR WASTE COLLECTORS AND LANDFILL OPERATORS. WE HAVE CONTINUOUS REPORTS OF THESE WASTES SPRAYING ON COLLECTORS ON ROUTES, OR CONTRIBUTING TO FIRES IN COLLECTION VEHICLES OR AT THE LANDFILL.

## VOLUME REDUCTION - PRACTICES AND IMPEDIMENTS

VOLUME REDUCTION IS ACCOMPLISHED BY:

- REDUCING THE AMOUNT OF WASTES AT THE SOURCE;
- REUSING PRODUCTS BY ONE PERSON WHICH ARE WASTES TO ANOTHER (E.G. WASTE CLEARINGHOUSES OR WASTE EXCHANGES);
- RECYCLING ALL MATERIALS FOR THEIR HIGHEST AND BEST USE;
- COMPOSTING ALL ORGANICS FOR WHICH THERE ARE USES; AND
- WASTE-TO-ENERGY PLANTS TO BURN THE REST FOR STEAM AND/OR ELECTRICITY.

ALL OF THESE TECHNIQUES ARE IN PRACTICE TO SOME DEGREE TODAY. THE KEY QUESTION IS HOW TO EXPAND THESE PRACTICES INTO MORE COMMON USE. ONE OF THE MAJOR IMPEDIMENTS TO SUCH PRACTICES IS THE SUBSIDY PROVIDED BY FEDERAL AND STATE GOVERNMENTS FOR RESOURCE DEPLETION (ORIGINALLY DESIGNED INTO TAX LAW TO HELP INDUSTRIALIZE AMERICA DURING THE INDUSTRIAL REVOLUTION). AS MANY RECYCLING INDUSTRIES ARE HORIZONTALLY INTEGRATED WITH VIRGIN COUNTERPARTS (E.G. GLASS AND PAPER MILLS), THERE IS NO CLEAR CONSTITUENCY CALLING FOR SUCH A CHANGE IN TAX POLICY.

SIMILARLY, CITIES ARE ABLE TO INTERNALIZE INTO PRICING THE FORMERLY EXTERNAL COSTS OF ENVIRONMENTAL REGULATION, CLOSURE AND POST-CLOSURE LIABILITIES. THIS CAN BE DONE THROUGH REVISING A COMBINATION OF ALL THE COLLECTION AND DISPOSAL CONTRACTS OR FRANCHISES, SOLID WASTE FACILITY PERMITS, AND RATE STRUCTURES TO SHIFT THE DISPOSAL ORIENTATION OF MOST WASTE SYSTEMS TO A MORE RECYCLING ORIENTED APPROACH. FOR EXAMPLE, IN SAN JOSE, THE GARBAGE COLLECTOR IS REQUIRED TO PAY THE CITY A "RECYCLING REBATE" TONNAGE FEE (THE FULL AVOIDED COST OF DISPOSAL) FOR ALL THE TONNAGE DOCUMENTED BY THE CITY TO HAVE BEEN RECYCLED THROUGH ITS CURBSIDE RECYCLING PROGRAM. IN FACT, LOCAL GOVERNMENTS ARE UNIQUELY ABLE TO DEFINE WHAT IS "ECONOMIC" FOR THE PRIVATE SECTOR IN THE AREA. HOWEVER, THIS MAY BE VIEWED AS A MAJOR IMPEDIMENT TODAY BECAUSE MOST LOCAL GOVERNMENTS DO NOT HAVE THE STAFFING, OPPORTUNITY OR UNDERSTANDING TO ACCOMPLISH SUCH A MAJOR OVERHAUL OF THEIR SOLID WASTE SYSTEM AS WE HAVE DONE IN SAN JOSE.

LANDFILLS THAT DO NOT REFLECT THE TRUE LONG-TERM COSTS OF THEIR OPERATION, CLOSURE AND POST-CLOSURE LIABILITY ARE PERHAPS ONE OF THE BIGGEST IMPEDIMENTS TO THE PROPER BALANCE OF VOLUME REDUCTION TECHNIQUES IN OUR NATION'S SOLID WASTE SYSTEM. AS INDICATED BEFORE, ONCE LANDFILL RATES HAVE SOARED OVER $100/TON IN THE EAST COAST, MANY CITIES AND STATES HAVE MUCH MORE SERIOUSLY CONSIDERED AND IMPLEMENTED VOLUME REDUCTION PRACTICES THAN BEFORE. RATES DO NOT HAVE TO BE INCREASED ARTIFICIALLY, BUT RATHER THE FULL LONG-TERM ENVIRONMENTAL AND RESOURCE COSTS CAN BE INCORPORATED INTO TODAY'S RATES BY AGGRESSIVE AND STRICT ENFORCEMENT OF THE HIGHEST QUALITY OPERATIONAL AND DESIGN STANDARDS FOR LANDFILLS. OUR DISPOSAL AGREEMENT PROVIDES FOR US TO SHARE IN ANY SUCH COSTS FOR THE LANDFILL WHICH WE ARE USING, AND THE CITY IS INSTITUTING ITS OWN AGGRESSIVE SOLID WASTE ENFORCEMENT SYSTEM TO RESPOND TO THE PUBLIC'S CONCERNS EXPRESSED WITH THE PASSAGE OF PROPOSITION 65 LAST YEAR.

TOXICITY REDUCTION - PRACTICES AND IMPEDIMENTS

AS NOTED BEFORE, RECYCLING SERVICES MAY PROVIDE A MAJOR SIDE-BENEFIT IN REDUCING THE POTENTIAL TOXICITY OF CONSTITUENTS OF MUNICIPAL SOLID WASTES. USED MOTOR OIL RECYCLING IS BEING DONE BY MANY SERVICES STATIONS IN SAN JOSE, AND IS COLLECTED WITH CURBSIDE RECYCLING IN SEVERAL CITIES IN CALIFORNIA. WE HOPE TO INCORPORATE IT AS PART OF OUR CURBSIDE RECYCLING OR GARBAGE COLLECTION SYSTEM WITHIN THE NEXT YEAR OR TWO.

HOUSEHOLD HAZARDOUS WASTES TURN-IN DAYS ARE THE STATE-OF-THE-ART IN RESPONDING TO THESE CONCERNS IN CALIFORNIA. EVERY CITY IN OUR COUNTY HAS DONE SOMETHING ALONG THESE LINES IN THE LAST YEAR OR TWO. IN SAN JOSE, WE ARE PLANNING A PILOT PROGRAM THIS FISCAL YEAR TO PROVIDE TURN-IN DAYS TO A SMALL PORTION OF THE CITY TO ASSESS THE POTENTIAL DEMAND FOR SUCH A SERVICE. WE WILL ALSO BE EXPLORING MORE LONG-TERM SOLUTIONS TO THIS PROBLEM, SUCH AS ESTABLISHING A TEMPORARY STORAGE AND DISPOSAL FACILITY (TSDF) WHERE RESIDENTS WOULD BE ABLE TO DISPOSE OF THEIR WASTES AT NO COSTS AT ANY TIME.

THE MAJOR IMPEDIMENT TO THESE PROGRAMS IS THE COST TO PROVIDE THE SERVICE. MOST CITIES HAVE RECEIVED AT MOST A 1-2% RESPONSE RATE FROM THEIR RESIDENTS, RESULTING IN A PROGRAM COST OF APPROXIMATELY $50-100/HOUSEHOLD SERVICED. THERE HAS GOT TO BE A BETTER WAY THAT TRULY RESPONDS TO THE NEED AND OBTAINS PARTICIPATION RATES COMPARABLE TO THAT WE ARE GETTING IN CURBSIDE RECYCLING (60% OF THE PUBLIC PARTICIPATING).

FEDERAL POLICIES NEEDED

THE ATTACHED NATIONAL POLICY ON RECYCLING ADDRESSES THE MAJOR NEEDS FOR THE FEDERAL GOVERNMENT IN THE SOLID WASTE ARENA TODAY. IN PARTICULAR, THIS POLICY CALLS FOR THE FEDERAL GOVERNMENT TO:

- REVIEW FEDERAL TAX POLICY TO MODIFY SUCH POLICIES TO EQUALIZE THE BENEFITS TO MANUFACTURERS IN SELECTING BETWEEN RECYCLED AND VIRGIN MATERIALS;
- PROVIDE INFORMATION TRANSFER ASSISTANCE IN FACILITATING THE TRANSFER OF THE LATEST INFORMATION ON RECYCLING. THIS IS PARTICULARLY NEEDED TO HAVE EPA HELP REDEFINE THE CURRENT VIEW OF THE "STATE-OF-THE-ART" IN RECYCLING AND SOLID WASTE TECHNOLOGIES. SINCE EPA STOPPED PLAYING THAT ROLE IN THE SOLID WASTE FIELD, MANY GROUPS IN THE UNITED STATES HAVE NOT ADVANCED IN THEIR THINKING BEYOND THE LAST VIEW OF THE STATE-OF-THE-ART PROVIDED BY EPA IN THE LATE 1970S.
- ENCOURAGE BUSINESS AND INDUSTRY TO DESIGN FOR RECYCLABILITY. WHEN DESIGNING NEW PRODUCTS, BUSINESS, INDUSTRY AND GOVERNMENT POLICIES AND PRACTICES SHOULD ELIMINATE, TO THE MAXIMUM EXTENT POSSIBLE, FACTORS IN THE DESIGN OF PRODUCTS WHICH IMPEDE THE PRODUCT'S RECYCLABILITY AND WHICH INJECT HAZARDOUS INTO THE RECYCLING PROCESS (E.G. NOT ALLOWING SOFT DRINK CANS OR BOTTLES TO BE MADE FROM MORE THAN ONE MATERIAL AT A TIME).
- IMPLEMENTATION OF RCRA REQUIREMENTS FOR PROCUREMENT AND MARKET DEVELOPMENT. PERHAPS THE NATIONAL COMMISSION ON RESOURCE CONSERVATION

AND RECOVERY (APPOINTED IN 1980 BUT NEVER CONVENED BY THIS ADMINISTRATION) SHOULD BE CONVENED TO REVIEW THESE ISSUES AND MAKE RECOMMENDATIONS TO THE CONGRESS.

OF THESE RECOMMENDATIONS, CLEARLY THE MOST IMPORTANT ARE THE TAX POLICIES AND THE INTERRELATED PROGRAMS THAT WOULD HELP TO DEVELOP MARKETS FOR MATERIALS RECOVERED FROM LOCAL RECYCLING PROGRAMS. AS MORE MATERIALS ARE COLLECTED, THERE MUST BE A PRODUCTIVE USE FOR THEM OR THEY WILL ONLY END UP IN A DIFFERENT LANDFILL THEN THEY WOULD HAVE OTHERWISE. IN SAN JOSE, WE BELIEVE THAT ANY RECYCLING PROGRAM SHOULD ALSO WORK TO DEVELOP MARKETS FOR MATERIALS COLLECTED. THE FEDERAL GOVERNMENT COULD PLAY AN IMPORTANT ROLE BY TARGETTING SOME OF ITS ECONOMIC DEVELOPMENT EFFORTS TO INDUSTRIES THAT WILL ALSO HELP CREATE DEMAND FOR RECYCLED MATERIALS (E.G. SUPPORT FOR MINI-STEEL MILLS WHICH USE A HIGH PERCENTAGE OF SCRAP IRON).

THE EASIEST FEDERAL POLICY TO IMPLEMENT WOULD BE DIRECTING EPA ONCE AGAIN TO MONITOR THE STATE-OF-THE-ART IN RECYCLING AND PROVIDE THE LATEST INFORMATION TO LOCAL GOVERNMENTS AND INDUSTRY TO USE IN DESIGNING THE BEST LOCAL PROGRAMS POSSIBLE. SUPPORT FOR SUCH EFFORTS AS THE NATIONAL RECYCLING COALITION'S NATIONAL RECYCLING CONGRESS WHICH WILL BE HELD IN TWO WEEKS IN AUSTIN, TEXAS SHOW THAT THERE IS A CLEAR DEMAND FOR SUCH INFORMATION. EVENTS SUCH AS THOSE SHOULD ALSO BE SUPPORTED BY THE EPA.

## STATE POLICIES NEEDED

MANY STATES HAVE MOVED TO ADDRESS THESE ISSUES THROUGH A WIDE VARIETY OF PLANNING, POLICY, ENFORCEMENT AND GRANT ACTIVITIES. AS STATED BEFORE, THE KEY IS ASSURING THAT THE HIGHEST ENVIRONMENTAL STANDARDS ARE BEING MET BY EXISTING DISPOSAL FACILITIES WHILE PROVIDING LOCAL GOVERNMENTS WITH THE LEGAL ABILITY TO INCORPORATE AVOIDED COLLECTION AND DISPOSAL COSTS INTO CONSIDERATION OF ALTERNATIVE DISPOSAL TECHNIQUES SUCH AS RECYCLING.

IN NEW JERSEY THEY HAVE GONE BEYOND THAT TO MANDATE THAT EVERY CITY MUST PROVIDE RECYCLING PROGRAMS TO THEIR RESIDENTS. IN OREGON, THE 1984 RECYCLING

OPPORTUNITY ACT REQUIRED THAT CITIES OVER 4,000 POPULATION PROVIDE CURBSIDE RECYCLING SERVICES. IN CALIFORNIA, WE HAVE FOCUSED ON THE MARKET DEVELOPMENT AND TAX ISSUES HIGHLIGHTED ABOVE. SAN JOSE HAS SUPPORTED A BILL, SB188, WHICH WOULD PROVIDE A 10% TAX CREDIT FOR THE PURCHASE OF RECYCLED MATERIALS. SIMILARLY, IN OREGON, THEY HAVE HAD AN INVESTMENT TAX CREDIT FOR RECYCLING IN EFFECT FOR SEVERAL YEARS, PROVIDING LITERALLY MILLIONS OF DOLLARS OF ASSISTANCE TO REDRESS OTHER SUBSIDIES AGAINST RECYCLING EMBODIED IN CURRENT STATE AND FEDERAL TAX CODES.

THERE ARE MANY WAYS FOR STATE AND LOCAL GOVERNMENTS TO PROCEED TO ACHIEVE A MORE BALANCED SOLID WASTE SYSTEM IN THE FUTURE. THE FEDERAL GOVERNMENT COULD PROVIDE TECHNICAL ASSISTANCE, TECHNOLOGY DEMONSTRATIONS, TAX AND FINANCIAL INCENTIVES FOR INNOVATIONS, AND STRONG ENFORCEMENT OF REGULATIONS AS TOOLS TO ASSIST STATE AND LOCAL GOVERNMENTS IN MOVING IN THE DIRECTION PUBLIC POLICY IS DEMANDING.

CONCLUDING REMARKS

I HAVE ALSO PROVIDED BACKGROUND INFORMATION ON SAN JOSE'S CURBSIDE RECYCLING PROGRAM, WASTE REDUCTION STRATEGY AND RELATED ACTIVITIES. I HOPE THAT THIS WILL HELP YOU UNDERSTAND HOW CITIES ARE VIEWING SOLID WASTES TODAY, TO AIDE YOU IN CONSIDERING THE APPROPRIATE ROLE OF THE FEDERAL GOVERNMENT. WHATEVER YOU DECIDE, PLEASE ASSIST US IN WORKING TO RESOLVE THIS PROBLEM. THE FEDERAL GOVERNMENT HAS A SIGNIFICANT IMPACT ON THE ECONOMICS OF RECYCLING AND SOLID WASTE AND MUST COME TO FACE WITH THAT REALITY. ALTHOUGH IT IS THE EPITOME OF AN ISSUE THAT CAN BEST BE RESOLVED AT THE LOCAL LEVEL THROUGH A PUBLIC AND PRIVATE PARTNERSHIP, THE FEDERAL GOVERNMENT NEEDS TO PROVIDE A LEVEL PLAYING FIELD FOR RECYCLING TO COMPETE. FEDERAL POLICY HAS CONTINUED TO SUBSIDIZE VIRGIN RESOURCE DEPLETION, EXACERBATING THE DIFFICULT PROBLEMS IN SOLID WASTE CONFRONTED BY CITIES THROUGHOUT THE COUNTRY. WE CAN NO LONGER AFFORD TO CONTINUE TO DEAL WITH THIS ISSUE IN THIS WAY. IT IS TIME THAT WE HAD A NATIONAL RECYCLING POLICY. WE URGE YOU TO PROVIDE SUCH LEADERSHIP.

BFI
BROWNING-FERRIS INDUSTRIES

Statement of

JAMES R. GRECO

Divisional Vice President

Government and Industry Affairs

BROWNING-FERRIS INDUSTRIES

Before the

Senate Environment and Public Works Committee

Subcommittee on Hazardous Wastes & Toxic Substances

in

Washington, D.C.

on

October 1, 1987

1150 CONNECTICUT AVENUE N.W. • WASHINGTON, D.C. 20036

## Statement of James R. Greco, Browning-Ferris Industries

### Introduction and Background on BFI

It is a pleasure to appear today on behalf of Browning-Ferris Industries, one of the nation's leading companies engaged in the collection, transfer, and disposal of solid and chemical wastes.

BFI currently operates in 42 states and in well over 200 congressional districts across the country. BFI is among the largest waste services companies in Montana, New Jersey, Maryland, and Minnesota for example, and has substantial operations in Florida, Rhode Island, Wyoming, and Idaho among the many states represented by members of this subcommittee.

For fiscal year 1987, BFI's revenues will be roughly $1.65 billion. Approximately two-thirds of BFI's business involves the collection of commercial and industrial solid waste -- that is, non-hazardous waste generated by schools, businesses, shopping centers, office buildings, manufacturing plants, and construction sites. Another 17% of BFI's business is derived from the collection of residential solid waste from nearly 3,000,000 residences we serve. Approximately 12% of BFI's business derives from solid waste processing and disposal; BFI utilizes 36 transfer stations -- those facilities at which smaller refuse trucks deposit their waste for consolidation into much larger over-the-road vehicles -- and operates approximately 100 landfills, roughly half of which BFI owns.

In addition to BFI's residential customers, BFI has over 460,000 commercial and industrial accounts as well. Over the course of a year BFI collects over 20 million tons of waste for disposal. Our challenge is to find an environmentally sound place to dispose of this waste.

## Assessment of Solid Waste Disposal Options

What, in fact, happens to all this waste once we collect it? In today's market, a very high percentage -- probably 95% or more -- is disposed of in permitted sanitary landfills. BFI takes perhaps 2-3% of the waste we collect to waste-to-energy plants along the East coast, and less than 1% of the waste that we collect is recycled or reused.

Over the next decade, we certainly expect that the percentage of waste that BFI delivers to waste-to-energy plants or to recycling operations will increase significantly. We do not think, however, that the order of disposal options -- that is, primarily landfilling, followed by waste-to-energy and then source separation of reusable or recyclable items -- is likely to change over the next 8-10 years given the nature of investments and the political and regulatory climate today.

## Modern Landfills

While we are encouraged about the future of the waste-to-energy industry and the recycling business, landfilling today is simply more practical and cost-effective, and we implement environmental and public health safeguards at landfills used by BFI. Landfilling methods today are a far cry from what they were 20 years ago, when the waste industry was largely an accumulation of local municipal operations and small private operations throughout the country. Indeed, BFI did not even exist in its current form until 1969. Today, at well-run landfills, one will find technologically-advanced engineering and construction methods at work in assuring proper disposal and environmental protection. We commend to any of the members of this subcommittee a visit to a modern landfill as a contrast to the open dumps that were outlawed with the Solid Waste Disposal Act in 1965.

It is important to make a point about modern landfills that unfortunately tends to be obscured. It may seem implausible to lay persons, but modern landfills -- those permitted and designed since RCRA was enacted -- are as different from old municipal dumps as modern computers are from their earliest predecessors.

Teams of engineers, hydrologists, and geologists collaborate today on siting and designing environmentally safe landfills; landfills often have sophisticated features to control water run-off and methane gas; and sanitary landfill operators direct waste haulers not to dispose of hazardous wastes or free liquids at such sites. And design features are becoming more sophisticated all the time. Decades ago, well before BFI even came into existence, such methods were unheard of.

For all the talk about municipal dumps appearing on the Superfund list, the fact is that such municipal dumps probably received every kind of waste imaginable -- not just household waste but undoubtedly a fair amount of toxic chemical waste as well. Such dumps may have been operated without regard to hydrogeological factors. It is no surprise that such dumps would make their way onto the Superfund list. This is no basis for inferring that modern landfills leak or will themselves become Superfund sites. Indeed, we believe there is good reason to conclude that modern landfills function in accord with Congress's desire to protect human health and the environment.

A recent study performed by the EPA found that 85% of sanitary landfills do not have any type of liner in place, and 75% have no groundwater monitoring system. BFI-owned landfills, in contrast, are all either lined with composite or recompacted clay liners (73%) or have at least five feet of in-situ clay (27%), and 98% have groundwater monitoring. The point is not to blow our own horn but to demonstrate that no new landfill legislation or regulations are needed to achieve modern practices. Enforcement of the existing laws against municipally-owned as well as privately-owned landfills, rural as well as urban, and privately-held as well as publicly-held companies is what is needed to accomplish Congress's objectives.

## Experience with Recycling

BFI supports source separation and marketable recycling, notwithstanding the misconception that recycling would hinder the business of large waste services companies. On the contrary, if a company such as BFI were to take a purely self-interested position, recycling would be very welcome. For a large waste collection company, which is what BFI predominantly is, recycling means increased demand from communities for more and varied collection services. Recycling enables a landfill operator to preserve its air space. Given the recent significant -- in some places, skyrocketing -- increases in disposal fees, preserving scarce landfill space extends a community's reliance on available disposal capacity. Indeed, many factors other than pure self-interest account for our support for recycling.

One must recognize, of course, that a large percentage of solid waste that a company like BFI collects every day simply cannot be recycled. All kinds of disposables, modern plastics, and many metal alloys, just to name a few examples, have serious barriers to recycling or are simply incapable of being recycled with today's technology. De-inking of newspapers requires exceptionally careful source separation to produce useable bundles and can produce a very hazardous residue. Moreover, one must realize that once a community gets involved with recycling, it is essentially in the commodities market, subject to the laws of supply and demand for goods like paper and aluminum cans. Thus, recycling is not without its own complications.

BFI has experience in the recycling business that is probably unprecedented for a waste services company. In the early 1970's, BFI acquired Consolidated Fibres Inc., a waste paper marketing company. BFI's view at the time was that our collection of so much waste paper would dovetail remarkably well with Consolidated Fibres, which was expert at marketing various grades of waste paper in the U.S. and abroad.

The early years of this major acquisition seemed to confirm BFI's expectations. The demand for paper was quite strong, and BFI profited from its investment. During 1974-75, however, the experience was far different. Supply of paper was high; demand fell off dramatically; the price for paper dropped precipitously. What had seemed like a smart venture at first soured in a dramatically cyclical marketplace. The cyclical nature of the secondary fiber business became disruptive to the more stable characteristics of BFI's solid waste business.

BFI recognized that such a cyclical market was not the basis for a strong business, and Consolidated Fibres was spun off in 1976 as a separate corporation. This experience appears relevant to this subcommittee's inquiry into the general topic of recycling. Recycling puts recyclers -- whether communities or private firms -- into the commodities business. Worldwide factors, totally outside the control of any one entity, can thoroughly disrupt operations. If communities down-size waste-to-energy plants or ban landfills based on certain recycling assumptions, those assumptions could prove to be dramatically wrong. The markets for waste paper or aluminum cans -- even glass -- could be very weak. Then what is a community -- which continues to churn out tons of solid waste per day regardless of worldwide factors -- to do with its waste?

This discourse on one company's experience in major recycling efforts is not said in derogation of recycling generally. It is said merely to alert those who seek to legislate in this area that widespread recycling may require extensive governmental intervention to deal with the peaks and valleys that will otherwise occur in the markets for recycled goods.

## Waste-to-Energy

BFI believes that the infant waste-to-energy industry has an inescapable role to play in the area of solid waste disposal. BFI has demonstrated its confidence in the waste-to-energy industry in a major way. BFI is a joint venturer with Air Products and Chemicals, Inc., of Allentown, Pennsylvania in American REF-FUEL, a company which now has eight waste-to-energy projects in very early stages of development. Because solid waste disposal capacity is most limited in many areas of the Northeast, most of the Ref-Fuel facilities are planned for construction in areas such as Boston, Long Island, New Jersey, Connecticut, and Pennsylvania. As landfill space diminishes and tipping fees soar, BFI believes that environmentally sound waste-to-energy facilities stand to provide substantial relief to residents in the Northeast today and throughout the country in years to come as the landfill disposal capacity shortage moves south and west.

American REF-FUEL has the North American license to a time-tested European technology for burning waste and converting it into electricity. Twenty-five years of experience with this technology in Europe convinces us that the waste-to-energy industry is a viable option for solid waste disposal here in the United States. We are confident that the technology poses no real threat to our environment.

Congress cannot lose sight of the fact, however, that even with waste-to-energy plants, the availability of landfill space is imperative. Burning waste reduces its volume to roughly 20-30% of the volume coming off the refuse truck, but the residue that remains must be managed some way, either through reuse, recycling, or ultimately landfilling.

BFI is obviously mindful of the current debate over proper disposal of waste-to-energy ash residue. In contrast to some waste-to-energy vendors, BFI must concern itself with resolution of this issue from both the ash generation (through American REF-FUEL) and ash disposal standpoints.

From the evidence we have seen, combined fly and bottom ash disposed of in a recompacted clay-lined landfill, perhaps a monofill, poses no threat to the environment. This is the position endorsed by state waste management officials as well as the waste-to-energy industry. Beneficial reuse of ash in paving or construction materials is also possible.

Resolving the issues of ash disposal and regulating air emissions, and even determining proper landfill standards, ultimately depends on the nature of objects in the waste stream. We are encouraged that this subcommittee is focusing on the issues of source separation and product composition as ways of attacking the root cause of environmental concerns. After all, if the lead in batteries and cadmium from colored printing inks, to pick two prominent examples, were separated from the waste stream, standards for ash residue disposal and air emissions would certainly be far less controversial. Steps should be taken to find and encourage substitutes for harmful constituents in products. Some states are seeking to act in this area, but ultimately Congress must lead the way.

## Regional Variations and Solid Waste Land Disposal

BFI concurs with the views expressed by the National Solid Wastes Management Association that there is no national disposal capacity crisis but that there are smaller crises at local levels, particularly in the Northeast. The primary reason for the capacity shortage in the Northeast stems from a fairly obvious fact: a large percentage of our country's population resides in the Northeast, yet the states they reside in tend to be densely populated and thus offer fewer locations for the siting of landfills. Moreover, land prices tend to be higher and suitable property for waste disposal is scarce, thus rendering it more difficult to obtain sufficient space for landfill construction. As a result, tipping fees range from over $100 a ton in New Jersey to $6.00 a ton in Texas, for example.

One consequence of this disposal shortage is to require that waste haulers often travel long distances simply to dispose of their waste. For example, in the Northeast, it is not rare for solid waste to be disposed of over 200 miles from the point at which it was collected. Moreover, labor costs in the Northeast tend to be higher than in many other regions in the country.

Another regional variation that exacerbates the disposal shortage is the hydrogeology of a location -- the makeup of the subsurface ground and groundwater at which a landfill could potentially be sited. Long Island, to cite one example, sits above a sole-source aquifer. Pollution of that aquifer could jeopardize the drinking water of millions of people who reside on Long Island. Therefore, even the most modern, well-designed landfill is seen as a potential threat to the whole island's drinking water supply and new landfills will be banned on Long Island in a few years by New York state law. Florida, to pick another example, poses problems because the groundwater is so close to the surface, making it far more difficult than normal (though not impossible) to engineer and construct a landfill that will not leach into the adjacent groundwater. In the mountainous terrain of areas in the Far West, by contrast, there is no discernable groundwater for hundreds of feet below the surface, so a modern landfill cannot even arguably pose a threat to the drinking water source in many locations.

Obstacles to Increased Disposal Capacity

Probably the single most significant obstacle to increasing disposal capacity is the well-known "not in my backyard" or "NIMBY" syndrome. It is this syndrome, more than any other single factor, that prevents the siting of sufficient landfill capacity near, say, Philadelphia, making it necessary for Philadelphia to truck its waste as far as Baltimore (where it is burned). We certainly understand the sentiment behind the NIMBY syndrome, and we understand as well why local elected officials don't want to have their constituents deal with someone else's waste.

The NIMBY phenomenon, however, has reached the point that a certain irrationality has overtaken the siting and permitting process in the waste disposal area. Objectively, modern landfills and waste-to-energy plants are far more environmentally safe than their predecessors. Unfortunately, by raising such a vocal and sometimes violent opposition to new facilities, opponents of these more modern disposal options force their communities to stretch out the lives of older facilities. Such an outcome seems to be in no one's best interest.

In BFI's experience, it can often take five years or longer to site and permit a new waste disposal facility, whether a landfill or a resource recovery plant. Much of this time is typically consummed by addressing the concerns of local opponents. As a result of the long lead time to furnish new disposal capacity, any community that does not now know where it will dispose of its waste over the next five years may face a severe -- and perhaps disabling -- crunch once its existing disposal capacity is exhausted.

By and large, the states' inability to permit sufficient solid waste disposal capacity is a political problem rather than a technical one. States like New York, for example, surely have within the appropriate governmental agencies the technical know-how to site disposal capacity and draft appropriate permits that would safeguard New York's citizens. What states often lack, however, is a nucleus of government officials -- elected or otherwise -- who are prepared to forge ahead with permitting new disposal capacity over vocal citizen opposition.

It has been BFI's experience to locate a suitable area for a landfill, then to perform a wide array of scientific tests to confirm the suitability of its geology and other factors -- all at BFI's own expense, of course, -- only to have local politicians kill projects before we even submit an application for a permit. We strongly doubt, again to pick New York as an example, that an entirely new solid waste landfill will be permitted in New York in the foreseeable future. All the while, of course, New York's citizens are producing over 18 million tons of solid waste per year which has to be disposed of somewhere.

Another increasingly troublesome obstacle to solid waste disposal is the growing number of waste importation barriers imposed by state and local governments. The United State Supreme Court has stated quite clearly that state bans on the importation of out-of-state waste into privately-owned landfills represent an unconstitutional intrusion on interstate commerce.

Many state and local governments are now proceeding in disregard of the Supreme Court's ruling. State legislatures in Delaware and Georgia, for example, enacted out-of-state importation bans, though fortunately these enactments were vetoed by those state's governors. In West Virginia, the governor recently acted through an executive order to prohibit the importation of out-of-state waste. A federal court has declared the governor's action to be unconstitutional. Other states, typically along the East Coast, are attempting to impose other measures that would discriminate against out-of-state waste.

Not only are such state laws typically unconstitutional, they most definitely interfere with regional solutions to the waste disposal problem. The attached graphic, illustrating present-day movement of solid waste in a five-county area in northeast Ohio, demonstrates how collected wastes have been transported to available disposal facilities there. Importation barriers represent a significant interference with the operation of the free market, which might allow that waste from, say, Chicago be properly disposed of in an isolated section of Wisconsin.

Finally, these barriers pose another kind of inefficiency. In New Jersey and Pennsylvania, counties are or may be required to develop plans to make them self-sufficient regarding waste disposal. Such plans are laudable in the abstract, but they ignore the fact that not every county -- from the most urban to the most rural, from the most wealthy to the most impoverished -- will have the resources to build its own landfill or construct its own resource recovery plant.

BFI is hampered significantly by these waste importation barriers, as in the following example. American REF-FUEL, in which BFI is a joint venturer, will be constructing and operating resource recovery facilities on Long Island. BFI plans to dispose of the ash generated by those plants in landfills outside New York State. American REF-FUEL and BFI made such a plan based on the assumption that if the Supreme Court said that states cannot bar out-of-state waste, then that must be the law. When states turn around and either try to circumvent or blatantly disregard such Supreme Court law, Ref-Fuel and BFI find themselves hard-pressed to make business plans on which they or the citizens they serve can rely.

## Conclusion

Mr. Chairman, we, like you, wish we had a crystal ball and could predict with certainty how the issue of solid waste disposal will be resolved in years to come. BFI will certainly be pleased to work with you, your colleagues, and your staff in any way we can to address this vexing national issue. For the present, our suggestions regarding a course of action are as follows:

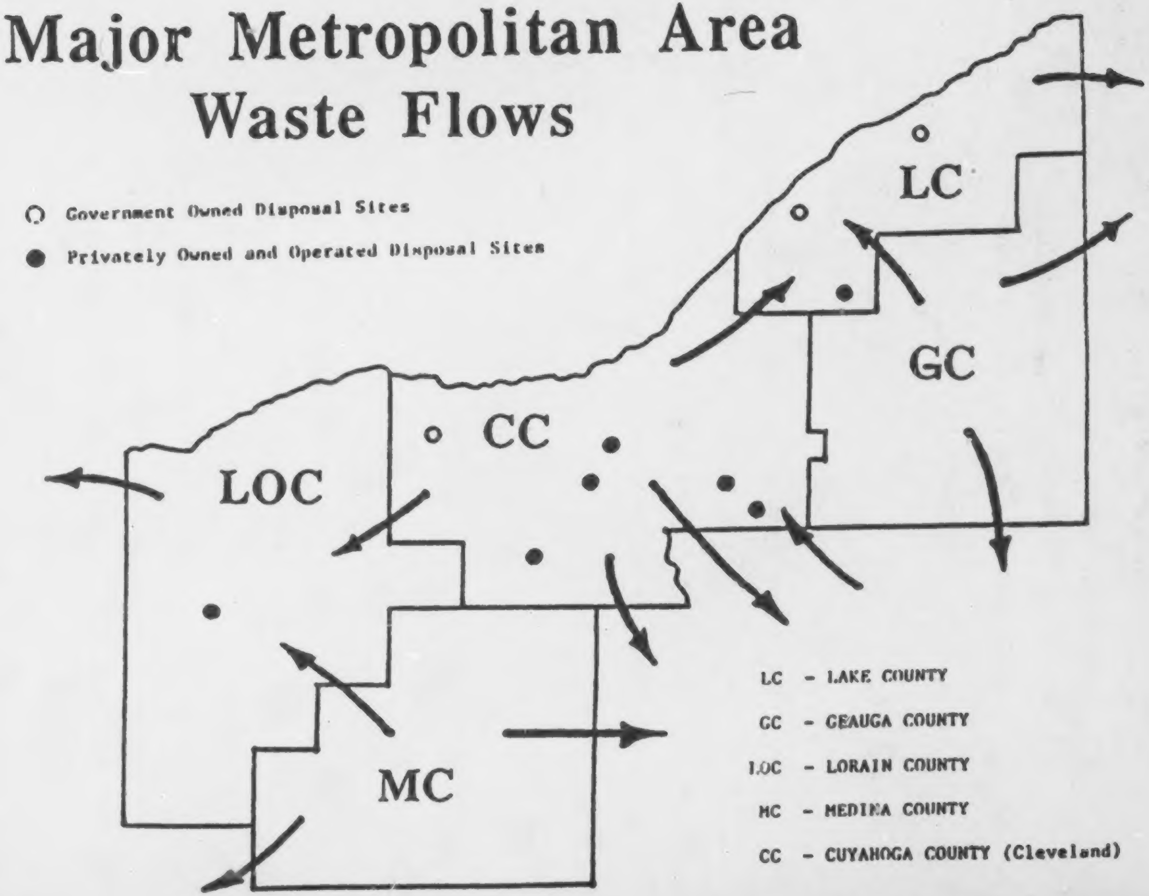
- Congress should encourage the development of waste-to-energy and recycling.
- Congress should bring pressure to bear on state officials to avoid knee-jerk obstruction of development of landfills or waste-to-energy projects.
- Congress should prevail upon the states in any way possible to observe the Supreme Court's decision permitting the free flow of waste across state lines, perhaps using disincentives akin to those used in connection with enforcing the old 55 mile per hour speed limit.

We hope we at BFI can be a resource to this subcommittee as it grapples with this issue in the months ahead.

# Major Metropolitan Area Waste Flows

○ Government Owned Disposal Sites

● Privately Owned and Operated Disposal Sites



LC - LAKE COUNTY

GC - GEAUGA COUNTY

LOC - LORAIN COUNTY

MC - MEDINA COUNTY

CC - CUYAHOGA COUNTY (Cleveland)

# TESTIMONY OF H. A. SCHLIEPER
ASARCO, INCORPORATED
BEFORE THE SUBCOMMITTEE ON HAZARDOUS MATERIALS
SENATE ENVIRONMENT AND PUBLIC WORKS COMMITTEE
OCTOBER 1, 1987

## I. INTRODUCTION

Good morning. My name is H. A. Schlieper. I am an Assistant to the Executive Vice President of ASARCO, Incorporated. On behalf of the company, I appreciate the invitation to appear and present our comments on today's topic--how to encourage recycling and materials recovery as alternatives to land disposal of hazardous wastes.

I also want to thank and congratulate Senator Baucus and the Subcommittee for calling this important hearing. Before RCRA is reauthorized, it is vital for the Congress to focus on the necessity for enhanced incentives (and the removal of disincentives) for recycling and materials recovery from hazardous wastes. Although the primary purpose of RCRA is to protect public health and the environment, another important purpose is to foster resource conservation and recovery. Squandering important natural resources instead of returning useful products to society makes little economic or environmental sense. Therefore, we welcome Congress' renewed attention to the question of how market mechanisms for resource recovery can be supported and enhanced, while removing regulatory burdens or barriers to materials reclamation.

In the testimony I present today, I would like to briefly explain:

- what ASARCO does and how the company operates;
- why primary nonferrous smelters represent unique resources for the management of metal-bearing hazardous wastes;
- how current regulatory proposals could inhibit primary nonferrous smelters from playing this unique role; and
- ASARCO's general recommendations to promote recycling and materials recovery from metal-bearing hazardous wastes.

## II. ASARCO'S OPERATIONS

Asarco is one of the world's largest producers of nonferrous metals and minerals. The company operates through a system of wholly-owned facilities and facilities owned by associated companies. These facilities engage in a range of activities including mining, milling, smelting, refining, and otherwise processing ores, concentrates and other metal-bearing intermediate materials. The company's processes are designed to separate various constituents and to concentrate and recover economically valuable metals, metallic compounds, and mineral products.

## III. ASARCO SUPPORTS RECYCLING AND MATERIALS RECOVERY. PRIMARY NONFERROUS SMELTERS CAN BE UNIQUE RESOURCES FOR THE MANAGEMENT OF METAL-BEARING HAZARDOUS WASTES

Asarco strongly supports recycling and materials recovery in the context of a hierarchical approach to the Nation's hazardous waste management problems. That means we recognize waste minimization as the most beneficial technique, when it is feasible. We see treatment methods (including materials reclamation) as the next best alternative. Finally, in situations where neither of these options is feasible or available, containment and permanent storage should be used.

Within this framework, Asarco believes that primary nonferrous smelters represent an important part of the solution to the Nation's hazardous waste management problems, particularly that portion of the problem which relates to predominantly metal-bearing wastes. Smelters and other metallurgical processes are the only types of technology presently available to recover useful metals from metal-bearing wastes; incineration does not promote conservation of materials resources.

Nonferrous smelters and refineries are specifically designed for the purpose of separating and recovering economically valuable metals and metallic products leaving behind residual materials with little discernible value. While primary nonferrous smelters use thermal energy for processing metal-bearing materials, they do not "burn" materials in the sense that incinerators do--i.e., for the purpose of destruction of hazardous constituents by combustion.

Asarco has no quarrel with the use of incineration for the destruction of hazardous constituents in predominantly organic wastes. However, incineration is neither designed nor effective for the purpose of reclamation and recovery of inorganic materials. In this regard, nonferrous smelter technology represents a unique resource for the management of metal-bearing wastes.

In the past, land disposal of metal-bearing hazardous wastes has been relatively common practice. Clearly, the removal of metals before disposing of otherwise metal-bearing hazardous wastes is a preferable alternative both from an economic point of view and from the standpoint of protecting health and the environment.

We are not suggesting that the Nation's hazardous waste problem mostly relates to inorganic wastes, or that primary nonferrous smelters are a panacea for that portion of the problem that does involve predominantly metal-bearing wastes. For some metal-bearing wastes, use of smelter technology will be appropriate and perhaps, even the best answer. For other types of metal-bearing hazardous wastes, other solutions may be technologically or economically preferable. What we are saying is this: Under appropriate circumstances, smelter technology can be applied for materials recovery purposes as the best alternative for managing some predominantly metal-bearing hazardous wastes.

Another important potential advantage of using primary nonferrous smelters for metals reclamation from predominantly metal-bearing wastes is that these facilities have already been built and are operating. They do not confront the so-called "NIMBY" ("not-in-my-back-yard") problem which makes siting of new hazardous waste management facilities so difficult. In addition, the nonferrous metals industry has excess capacity, some of which is on a stand-by basis. This excess domestic capacity has resulted from a protracted downturn in the metals market and from the marked increase in foreign metals imports in the past few years.

## IV. CURRENT REGULATORY PROPOSALS AND RCRA REQUIREMENTS CREATE UNINTENDED DISINCENTIVES TO SMELTERS' WILLINGNESS TO TAKE METAL-BEARING LISTED HAZARDOUS WASTES FOR MATERIALS RECOVERY PURPOSES. THUS, IN THIS RESPECT, THESE PROPOSALS AND REQUIREMENTS UNDERCUT THE VERY OBJECTIVES THEY SEEK TO ACHIEVE.

Despite the unique contribution that primary nonferrous smelters could make to solving the Nation's hazardous waste problems (particularly for metal-bearing wastes), this potential seems unlikely to be realized at present. This is so for a variety of reasons.

For example, a recently proposed rule from EPA would serve as a disincentive to smelters' willingness to take metal-bearing wastes for materials recovery purposes. In the EPA 's proposed rulemaking entitled, "Burning of Hazardous Waste in Boilers and Industrial Furnaces," published in the Federal Register on May 6, 1987, the Agency proposes to include smelters within the scope of these new regulations.

It seems clear, however, from both the language and legislative history of section 3004 (q) of the Act--the so-called "burning and blending provisions added by the 1984 Hazardous and Solid Waste Amendments--that regulation was authorized only for control of burning and blending of genuinely combustible organic wastes (such as spent oil) "for purposes of energy recovery." Regulation of blending and smelting of metal-bearing materials for materials recovery purposes was never contemplated or discussed by the Congress.

Even more important than our legal concern about the proposed regulations are our policy concerns. In Asarco's view, these proposals would thwart four important policy objectives of RCRA:

(1) to minimize the volume, toxicity, and concentration of hazardous wastes;

(2) to encourage recycling, reuse, and reclamation of materials;

(3) to use land disposal of hazardous wastes only as a measure of last resort; and

(4) to assure pretreatment of (or reclamation of hazardous materials from) hazardous wastes before allowing land disposal.

These objectives of RCRA would be frustrated, rather than furthered, by applying the proposed rules to materials recovery at primary nonferrous smelters. By doing so, the Agency would create a powerful disincentive for primary nonferrous smelters to take any hazardous waste as feedstock material. Under the proposed rules, primary nonferrous smelters handling listed hazardous wastes would become subject to Subtitle C permit requirements with the full range of Subtitle C consequences--double liner requirements, corrective action at all solid waste management units, post-closure requirements, and the mixture rule--to name but a few of the concerns. Application of the mixture rule would effectively convert the entire smelter complex into a hazardous waste treatment, storage, and disposal facility once a listed hazardous waste had been processed for metals reclamation purposes.

Even before these new rules were proposed, primary nonferrous smelters have been reluctant to process even quite valuable listed metal-bearing hazardous wastes because of RCRA's inflexible requirements. If the currently pending "burning and blending" proposals become final without change, primary nonferrous smelters will refrain completely from processing listed metal-bearing hazardous wastes. This deterrent effect on smelters inevitably results in land disposal of most of these wastes (or their metallic residuals) in contravention of RCRA's objectives.

The EPA and others argue, however, that "comparable" facilities such as smelters and incinerators should be treated equally under RCRA. They argue that because incinerators which burn listed hazardous wastes must get Subtitle C permits and comply with all Subtitle C requirements, primary nonferrous smelters which process hazardous wastes should have to do the same. ASARCO, Incorporated does not object to smelters having to meet the level of pollution control for air and water emissions which is necessary to protect health and the environment (when hazardous wastes are being processed), just as incinerators should have to do. But Asarco does disagree with the assertion that smelters and incinerators are comparable in their environmental consequences, particularly with respect to the management of metal-bearing wastes. Smelters and incinerators are not comparable in several key respects:

1. Smelters recover metallic materials, incinerators do not. Metals contained in hazardous waste which is incinerated wind up in the fly ash or bottom ash residues and then get disposed on land.

2. Smelters can affect materials recovery from metal-bearing wastes, returning the recovered materials to commerce. Intermediate materials in the smelting process, such as flue dusts, are recycled for further processing and metals recovery. The small amount of metals that are not recovered wind up in an inert slag that is usually disposed of on-site, uncomingled with municipal wastes. Incinerators, on the other hand, produce fly ash and bottom ash. Metals present in these ashes are generally land disposed, often co-disposed with other materials, and are much more subject to leaching and release into ground and surface waters and nearby soils and sediments.

3. Another important difference relates to receptor exposure: many smelters are located in remote and arid areas. By comparison, incinerators are generally located in more populous areas. In many instances, groundwater may not be present in the vicinity of the smelter waste management site.

In sum, smelters are preferable to incinerators to meet the RCRA objectives of protection of the environment and health when predominantly metal-bearing wastes are involved. This preferred status needs to be considered in future regulatory and legislative actions so as not to discourage primary nonferrous smelters from processing metal-bearing listed hazardous wastes.

Asarco is fully supportive of the need to exclude "sham recycling" of essentially organic listed hazardous wastes from any new policy to encourage reclamation of metal-bearing wastes. We believe the proposed rule attempts to accomplish this objective in an overly broad manner. Asarco is working with EPA in several different areas of study and regulation under RCRA/HSWA and we are hopeful that these cooperative efforts will lead to a satisfactory resolution of our concerns.

Although we are continuing to work with EPA on this specific issue, we believe it is important to bring to the attention of the Congress how current and proposed regulations under RCRA serve to discourage materials reclamation and recycling and how detrimental to hazardous waste management this effect is. I would like to point out one specific example of how recycling is impeded under current RCRA regulations. "Electric arc steel making dusts" containing significant amounts of zinc is a listed hazardous waste on which EPA is to make a land disposal ban decision by next summer. These materials have frequently been landfilled in the past. Substantial research funds are being spent to develop new technologies to recover metals from these wastes. Yet, using currently available nonferrous smelter technology and capacity, a company such as Asarco has the ability to process such materials and recover valuable metals. But the excessively rigid and onerous requirements of RCRA have prevented us from seeking this business. It is especially disconcerting at a time when the country is so dependent on zinc imports to be squandering these resources by land disposing of these wastes. While unintended and probably contrary to congressional intent, the discouragement of recycling and materials reclamation by primary nonferrous smelters has resulted from RCRA and its implementing regulations.

## V. OTHER RECENT ACTION RELATING TO RECYCLING--U.S. COURT OF APPEALS DECISION ON THE MEANING OF "SOLID WASTE"

On July 31 of this year, the U.S. Court of Appeals decided the case American Mining Congress v. U.S. EPA. This case is an important and positive result for minerals recycling and reclamation. Its decision answers the question, what is a "solid waste" for purposes of RCRA? The case holds that in-process materials which are subject to further processing for materials reclamation purposes are not to be considered "solid waste" under the Act.

This decision is important and deserves Congress' attention. The decision only expressly addressed intra-plant transfers of in-process materials. By implication, the court's reasoning suggests that the same result applies to inter-plant transfers of in-process materials. However, the court did not say this specifically. In Asarco's system, inter-plant materials transfers are necessary to complete the process for recovery of multiple metals from ores and concentrates. (See Appendix I.)

Asarco does not believe that in-process material ceases to be that and becomes "waste" instead when transferred between plants for further processing. To conclude otherwise would discourage recycling and materials reclamation and, at least in the nonferrous smelter industry, intrude into the heart of the manufacturing process, contrary to RCRA's stated intent. Thus, we believe it is important that Congress make clear that the principles in the AMC case apply to inter-plant transfers of in-process material as well as to intra-plant transfers.

Asarco would not oppose reasonable manifest requirements and transportation and storage control measures necessary to protect public health or the environment, so long as they are not accompanied by the excessive and extraneous Subtitle C requirements discussed above.

## IV. CONCLUSION

Asarco strongly believes that metal-bearing hazardous waste recycling and metal reclamation should be one important part of this country's strategy for dealing with its hazardous waste problems. Our purpose in appearing here today is not to advocate specific solutions or legislative changes. Rather, our purposes are to:

A. Support your efforts to recognize the importance of recycling and materials reclamation as essential elements of a national strategy to protect human health and the environment from genuine risks posed by hazardous wastes.

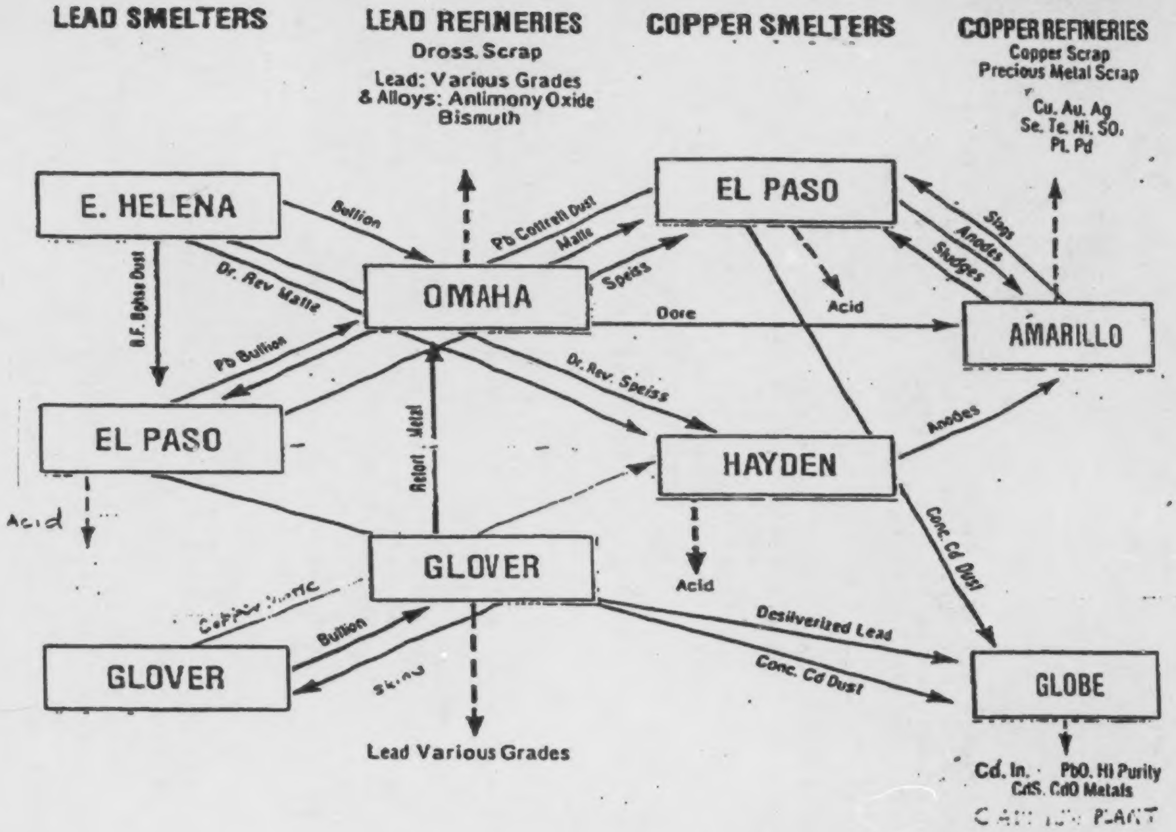
B. Urge this Committee to consider nonferrous smelters as vital and unique resources which can help further material recovery and recycling objectives for predominantly metal-bearing hazardous wastes.

C. Suggest that this resource may be squandered if unreasonably harsh and inflexible regulatory or legislative requirements make it economically undesirable for smelters to take metal-bearing wastes as feedstock for materials recovery purposes.

D. Express Asarco's desire to work with this Committee and to continue to work with EPA to develop a more flexible policy that better carries out RCRA's underlying objective--protection of public health and the environment, while not discouraging primary nonferrous smelters from processing metal-bearing hazardous wastes--a clearly preferable alternative to land disposal of these wastes.

Mr. Chairman, members of the Committee, thank you for the opportunity to testify. I will be pleased to answer any questions or submit additional materials for the record upon request.

Appendix I



ASARCO's OPERATIONS : MATERIALS RECOVERY SYSTEM

October 9, 1987

**Re: Supplementary Comment to October 1, 1987 Testimony of Mr. H.A. Schlieper, Asarco Incorporated before the Subcommittee on Hazardous Wastes and Toxic Substances, Senate Environment and Public Works Committee**

ASARCO, Incorporated wishes to submit for inclusion in the hearing record the following supplemental comments to the testimony delivered by Mr. H. A. Schlieper before the Subcommittee on Hazardous Wastes and Toxic Substances chaired by Senator Baucus. These comments amplify the answer to a question raised by Senator Baucus as to how Congress can facilitate the greater utilization of smelters for the reclamation of metal-bearing hazardous wastes.

Congress can facilitate the utilization of both primary and secondary nonferrous smelters in the reclamation of metals from metal-bearing hazardous wastes by establishing a different regulatory regime under RCRA for listed hazardous wastes from which metals or other materials are reclaimed. This would include reasonable manifest requirements and transportation and storage control measures needed to protect public health or the environment. The regulation would not require corrective action at all solid waste management units of the reclaiming facilities and the mixture rule would not apply to such facilities when engaged in materials reclamation from listed hazardous wastes.

Asarco would be pleased to work with the subcommittee and its staff to develop appropriate legislative specifications and/or language to implement this concept, which we believe would further the recycling objectives of the subcommittee.

In addition, Asarco would also like to present its views on two issues raised during the hearings: (1) the concept of design for recycling and (2) how to foster reclamation in the context of spent lead acid batteries.

## Design for Recycling

The concept of design for recycling initially appears to be quite alluring. It is supportable to the extent it means that in designing a new product, consideration is given to (1) the inevitability of the production of a solid and possibly a hazardous waste at the end of the product's life cycle and (2) how recycling can be facilitated at that time. However, in many circles, design for recycling has meant mandatory replacement of a product's constituents, which when improperly managed can result in detrimental impact on human health or the environment.

A particular material is used in a product, because it represents the best compromise between the properties required for meeting the performance objectives of the product and product cost (including cost of environmental compliance). Therefore, there is an ever-present search for "better" materials and where the tradeoffs are clear, these substitutions have been made. On the other hand, there are materials for which no economic substitutes exist: one example is lead in automotive batteries. In such cases, it makes sense to provide incentives for reclaiming, recycling, or reusing the constituent of concern rather than legislatively prohibiting use of that material in the product altogether.

Another example relates to the origin of lead and cadmium found in municipal solid waste combustion residues. One source of these elements is from inks used in printing. It makes sense, in addressing the problem of disposal of these residues, to consider source segregation of printed materials from household waste instead of banning the use of these constituents in printing ink.

In this context, it may be useful to cite an example how the lead industry has taken the initiative towards developing a solution to the waste disposal problem i.e. nonferrous metals constituents in automotive shredder waste. The shredding of automobiles produces a voluminous product containing plastics and metals called fluff, the disposal of which has been an important concern to the scrap industry. A couple of years ago, the U.S. Department of Energy examined the feasibility of incinerating the fluff. Their results indicated that the resulting ash, at times, does not pass the E.P. toxicity test. Currently, the Lead Industries Association (LIA) and the Cadmium Council in cooperation with the International Lead Zinc Research Organization (ILZRO) and the Metals Scrap Renewal and Education Foundation are considering a proposal to evaluate the use of chemical fixation to render the ash from fluff incineration non-hazardous.

A final point needs to be made with respect to the design for recycling concept. As experience under TSCA and the fuel regulation provisions of the Clean Air Act demonstrates, designing products by prohibitory regulation is a tricky business. Ruling out use of one material, constituent, or substance may necessitate use of an even more hazardous substitute. Thus, careful thought needs to be given to the benefits of any substance under consideration to be prohibited or controlled, the risks of the potential replacement substances, and the relation between these risks and benefits as part of any new design for recycling approach.

## Spent Lead Acid Battery Recycling

Concerns have been expressed that with the decline in recycling rates at secondary smelters that spent batteries are being improperly disposed and some have shown up at landfills. At a national level, we do not view the improper disposal of spent batteries as a problem. A recent EPA study* conducted by Putnam, Hayes & Bartlett, Inc. found no empirical evidence of ground water contamination from lead in

The collection and reclamation system in the industrial and more populous regions of the country are fairly well established, although recycling rates have tended to drop off during periods of low lead prices. This does not necessarily mean that the decrease in recycling rate represents improper disposal, since speculative accumulation and exports may also account for part of the decline. There are, however, less populated regions where the collection system is inadequate. Asarco favors state and local government initiatives to increase recycling rates in such areas.

*The Impacts of Lead Industry Economics on Battery Recycling, Prepared for the Office of Policy Analysis -- Environmental Protection Agency, Putman, Hayes & Bartlett, Inc., June 1986.

On behalf of Asarco, I wish to thank Senator Baucus and the Subcommittee for the opportunity to express our views on the important issue of how recycling and materials reclamation can be encouraged.

# TESTIMONY OF
# RED CAVANEY, PRESIDENT
# AMERICAN PAPER INSTITUTE, INC.

ON

SOLID WASTE MANAGEMENT AND PAPER RECYCLING

BEFORE THE

SUBCOMMITTEE ON HAZARDOUS WASTES AND TOXIC SUBSTANCES

COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

UNITED STATES SENATE

OCTOBER 1, 1987

My name is Red Cavaney, and I am President of the American Paper Institute (API), the national trade association of the pulp, paper, and paperboard industry. I am testifying today on behalf of the member companies of API.

Since World War II, the recycling segment of our industry has conducted a variety of programs designed to ensure that paper and paperboard mills utilizing secondary fibers have an adequate supply of good quality waste paper. We have been engaged in numerous efforts to promote products containing a recycled fiber content. And, we continue to be involved in other activities to encourage recycling, including development of new techniques to improve waste paper collection, processing, transportation, and storage.

We also continue to work with policy-makers at all levels of government on issues related to solid waste management and paper recycling. At the local level, we work cooperatively with municipal officials to develop effective programs to collect recyclable materials. As far back as the early 1970's, API worked with officials in Madison, Wisconsin, to establish the first municipal collection program for old newspapers, a program that continues to serve as a model for other communities. At the state level, the association and our member companies are actively involved in helping legislators and regulators maximize the potential for recycling. And, at the federal level, we continue to offer our experience and expertise on issues related to solid waste and recycling. For example, during the 1984 consideration of amendments to the Resource Conservation and Recovery Act, API worked with Congress to establish workable guidelines for the federal government's procurement of recycled paper.

We appreciate the opportunity to appear before the Subcommittee today to share our insights about paper recycling, its role in solid waste management, and its potential in the years ahead. In addition to this statement, I will also submit for the record a new API promotional brochure on recycling, which will be available in the next few days. That brochure provides further documentation of many of the points contained in this statement and also presents additional information on the paper recycling process.

## Paper Recycling Today: An Introduction

In the United States, there are approximately 600 mills producing pulp, paper, paperboard, or building products. Two hundred of these mills depend almost entirely on waste paper for their fibrous raw material. Another 300 use between 10% and 30% waste paper as a raw material in their manufacturing process.

The paper recycling industry in the United States has realized impressive growth during the past several years. Between 1970 and 1986, waste paper collection increased from 12.5 million tons to over 22 million tons per year, an increase in collection of over 75%. Domestic consumption has grown from 12.1 million tons to 18 million tons. During that same period, annual exports of waste paper increased nearly tenfold, from 400,000 tons to almost 4 million tons. Impressive growth is forecast to continue for the balance of this century in waste paper collection, domestic consumption, and exports.

Since the early 1970's, we have also realized steady growth in the rate of waste paper collection. The annual collection rate is defined as the percentage collected for recycling compared to the total domestic consumption of paper and paperboard. In 1986, Americans consumed 80.1 million tons of paper and paperboard; the 22 million tons of waste paper collected that year represented a collection rate of 28.2%. In other words, of all the paper and paperboard consumed domestically last year, nearly 30% was collected to be recycled into new products.

For a variety of reasons, certain grades of waste paper are far more viable candidates for recycling than others. Three principal factors that determine the recyclability of paper grades are: (1) the economics of source separation and collection; (2) the degree of contamination that results from commingling paper with food and other solid wastes; and (3) the nature of paper products, which may be unsuitable for recycling because they are combined with other materials (e.g., plastic coatings and aluminum foil laminations), are kept in permanent use (e.g., books and building materials), are burned in home fireplaces, or - as in the case of tissues - are frequently disposed of in sewers.

The largest single source of waste paper collected for recycling is corrugated boxes, including corrugated box plant clippings. In 1986, 8.2 million tons of used corrugated boxes (post-consumer waste) and 2 million tons of box plant clippings (industrial waste) were collected. The nationwide collection rate for old corrugated containers is 42%, with some metropolitan areas achieving a collection rate estimated to be in excess of 60%.

The next largest waste paper source is so-called "high grade" waste paper. These include trim or cuttings from converting plants that produce folding cartons, envelopes, bags, business forms, ledgers and other printed materials. The high grade category also includes tabulating cards and computer printout papers. Last year, 4.8 million tons of high grade waste paper were collected in the U.S. for recycling.

Old newspapers are also frequently recycled and constitute the principal grade of waste paper collected from homes. In 1986, approximately 4 million tons of old newspapers were collected, representing 30% of total U.S. consumption.

The final key category of waste paper collected for recycling is mixed papers. These are papers collected from office buildings and industrial facilities; in 1986, 2.7 million tons of mixed papers were collected domestically for recycling.

The impressive growth in paper recycling in recent years is attributable largely to market forces and the efficient, interdependent network of collectors, suppliers and producers that has developed. This includes 2000 waste paper dealers and brokers, which is 600 more than existed in 1970. Through this system, the supply of recyclable paper has largely become a function of demand, both foreign and domestic, a situation that has led to the efficient economic allocation of recyclable paper in the marketplace.

## Paper Recycling: Its Role in Solid Waste Management

Municipal solid waste management is a serious and growing problem in many parts of this country due to the lack of adequate disposal facilities. There is no question materials recycling is a key component in effective solid waste management. The more material that can be separated from solid waste and used as a raw material for the manufacture of new products, the less material will end up in a landfill.

But, at the outset, it is important to recognize that this is a very complex problem for which there is no single solution. According to a recent study prepared for the U.S. Environmental Protection Agency Office of Solid Waste and Emergency Response, 133 million tons of materials were discarded into the municipal waste stream. That study estimates that the municipal waste stream will grow to nearly 159 million tons by the year 2000. (Franklin

Associates, Ltd., "Characterization of Municipal Solid Waste in the United States, 1960 to 2000", p. S-2)

In addressing this problem, policy-makers are faced with four basic options:

(1) Waste reduction: The approach through which various government regulations are designed to discourage the production of certain products and/or their discard into the solid waste stream.

(2) Recycling: The utilization of waste materials in making new products.

(3) Waste-to-energy: Burning waste to recover its energy value and to reduce its volume.

(4) Landfilling: Burying wastes in the ground.

While the focus of our statement is on the potential for the recycling option generally, and paper recycling specifically, we feel strongly that none of these four options alone can solve the solid waste management problem. It must be a combination of these options, most particularly a combination of recycling, waste-to-energy, and landfilling.

We do not believe government initiatives designed to discourage production of certain products found in the waste stream hold much promise for reducing the volume of municipal solid waste. In fact, certain initiatives could even be counterproductive.

For example, some have identified packaging as a component of the waste stream that should be targeted for reduction. But, upon further scrutiny, it is clear that processing-packaging technology actually can serve to reduce the volume of household solid waste. A 1985 study comparing household refuse in Mexico City and the United States, which was commissioned by the Solid Waste Council of the Paper Industry, found that "the average household in Mexico City discards 40 percent more refuse each day than the average USA household." This was attributed largely to the fact that American households consume more processed-packaged foods than do residents of Mexico City, and thus discard far less food debris into the waste stream. (Dr. William L. Rathje, et al, "Household Garbage and the Role of Packaging - The United States/Mexico City Household Refuse Comparison," p. 53-54)

In short, it is our view that an integrated program of maximum materials recycling, expanded use of waste-to-energy technology, and environmentally sound landfilling of waste-to-energy ash and the remaining solid waste offers the single best hope for effectively managing the municipal solid waste challenge. In implementing such an approach, policy-makers must give careful consideration to the difficult problem of disposal facility siting. Citizens are reluctant to have facilities sited in proximity to their communities. Obviously, however, the safe and orderly development of adequate, environmentally sound disposal facilities is dependent on the ability to site them. It is not a simple or easy-to-solve problem, but it must be addressed.

One of the principal reasons we emphasize materials recycling and waste-to-energy as key solid waste management options is the very make-up of the waste stream. Due to social changes and technological advancements, paper and paperboard "discards" are gradually assuming an increasing portion of total solid waste and may account for 41% of the waste stream by the year 2000 (Franklin Associates, Ltd., p. S-2). Since much paper is recyclable and virtually all paper is burnable (and important to the efficient operation of waste-to-energy systems), this dual approach of materials recycling and waste-to-energy offers promise not just for today but for the future as well.

In the past, there has been concern within our industry about the compatibility of paper recycling and waste-to-energy. So-called waste flow control regulations, which attempt to channel solid waste to waste-to-energy facilities, threatened to deny recyclers' access to the recyclable portion of the waste stream. However, so long as the disposition of waste paper is determined by market demand rather than government mandate, we believe the two industries can coexist and, together, serve the public interest by providing a balanced and effective approach to solid waste management. API supports government initiatives to encourage the construction of waste-to-energy facilities by providing plant sites, investment tax credits, seed money, and low cost loans, so long as these initiatives recognize the importance of the existing collection systems for recyclable paper and the need for new ones as markets expand.

Substantial data exist which illustrate the importance of materials recycling in reducing the volume of municipal solid waste. Of all the materials recovered from municipal solid waste in 1984, paper and paperboard account for 86%, glass for 6.6%, metals for 6.0%, and plastics, rubber and leather for less than one percent each (Franklin Associates, Ltd., p. 3-18). This current level of paper recovery is making a significant contribution to reducing the volume of solid waste. According to the Franklin study (p. 3-17), paper and paperboard totalled 37% of "discards" into the waste stream in 1984; if no paper products were recovered for recycling, paper and paperboard would account for 42% of discards.

## Paper Recycling: Its Potential for Growth

Fortunately, prospects are excellent for continued growth in the collection of recyclable paper. By the year 2000, according to a Solid Waste Council of the Paper Industry study, the waste paper collection rate could be as high as 34.6%, if a variety of economic factors continue to create new demand for recycled products. (Franklin Associates, Ltd., "Waste Paper - The Future of a Resource," p. 56, 62, and 63) At that time, domestic consumption of waste paper is forecast to reach 26 million tons, an 8 million ton increase over 1986 levels. Also by the turn of the century, waste paper exports could double from the 1986 level of 4 million tons.

The basic question for policy makers to consider is what steps, if any, should be taken by government to encourage additional materials recycling? In the paper area, is there anything that can be done to further increase the current 28.2% collection rate? Is there anything that can be done to further reduce the amount of paper discarded as solid waste, which in 1986 totalled 42.5 million tons?

The most critical factor that will lead to growth in paper recycling is economic expansion, both domestically and internationally. In times of economic growth, as we have experienced for much of the 1980's, demand for recyclable paper increases, often faster than the readily available supply. Continued economic expansion will increase demand for recyclable paper, a situation which will provide further economic incentives for additional collection.

Another increasingly important factor is the changing economics of recycling versus disposal, or what could be termed the "avoided-cost" approach. Due to rapidly growing tipping fees for solid waste disposal, current market forces are already providing attractive incentives favoring recycling over disposal of recyclable materials. This offers important, market-based financial incentives for recycling, particularly in areas where the solid waste problem is most severe. They also tend to be more effective and efficient than government-provided incentives.

As government explores policy options, it is absolutely critical that the market forces that have led to the tremendous growth in the collection and use of recyclable materials be maintained. Government initiatives, no matter how well-intentioned, have the potential to destroy the interdependent network of collecters, suppliers, producers, and customers of recyclable products. If this market-based system is disrupted, future growth could be retarded.

In order to minimize the prospect of such disruption, API believes the federal government must move carefully in the development of a national solid waste management program to promote, at least in part, materials recycling. In this regard, we believe federal involvement in materials recycling should be clearly focused and designed to (1) enhance the market-based system already in place and (2) encourage state and local governments in the development of prototype programs designed to encourage further recycling.

With regard to the enhancement of the market-based system already in place, the federal government can play an important role in promoting waste paper exports as well as in increasing public awareness of recycling and source separation of recyclable materials. As mentioned earlier, waste paper exports have increased significantly in recent years, and the potential for future growth is tremendous. In order to maximize this potential, however, the industry must better understand the nature of demand in certain potentially promising foreign markets. We must also make sure that foreign governments do not impose barriers that limit the entry of U.S. waste paper. On the domestic front, the federal government could play a pivotal role in promoting the importance of recycling. For example, a "Smokey the Bear"-type campaign for recycling could play an important role in encouraging additional source separation and collection of recyclable paper. Both of these approaches would compliment, and likely expand, the existing recycling network.

In considering policy options at the federal level, it is important to realize that state and local governments have already developed innovative programs to encourage recycling. These range from mandatory source separation programs to statutes ensuring recyclers' access to the recyclable portion of the waste stream. These efforts have been most successful on the East and West coasts where a number of mills and ports of debarkation are located. The paper industry has provided markets and technical assistance in developing the most efficient collection systems in these areas. States and municipalities are the proper testing grounds for such ideas, some of which may prove to have applicability in a broad range of other areas in the country where markets are strengthening. For this reason, the federal government should encourage states and localities to increase awareness of recycling in their communities and to develop innovative recycling programs.

## Conclusion

In conclusion, we thank the Subcommittee for the opportunity to appear today and commend you for your interest in this very important issue. Managing solid waste is a very real problem, one that is reaching crisis proportions in certain densely populated areas of this country. This industry is committed to working with policy-makers at all levels of government in an effort to develop rational and effective responses to the solid waste challenge, responses we believe must in part include materials recycling.

Again, API appreciates the opportunity to share our insights, and I look forward to responding to any questions you may have.

Testimony of

A. Irene Schmidt
Eastern Regional Manager
Alcoa Recycling Company, Inc.

before the
Subcommittee on Hazardous Wastes and Toxic Substances
Committee on Environment and Public Works
United States Senate

October 1, 1987

Mr. Chairman and Members of the Subcommittee, thank you for the opportunity to testify on the role of aluminum can recycling in the management of our country's municipal solid waste.

My name is Irene Schmidt. I am Eastern Regional Manager for Alcoa Recycling Company, Inc., a wholly-owned subsidiary of Aluminum Company of America (ALCOA). I am responsible for the promotion of aluminum can recycling, and the retrieval and processing of aluminum beverage containers on the East Coast. Alcoa does not make cans, but we are a major supplier of aluminum can sheet to the beverage industry. We are also one of the largest factors in can recycling throughout the United States.

We are very proud of the unqualified success of aluminum can recycling. What began as a rather questionable proposition in the early 1970s -- that a throwaway society could be induced to voluntarily save and return its beverage containers -- has grown into a strong and healthy industry. Over 50% of the aluminum beverage containers produced last year were recycled. That was over 35 billion cans. Can collectors were paid over $200 million for returning their containers to the 10,000 plus recycling centers across the country. We estimate that more than 30,000 Americans are currently employed in some facet of the can recycling industry.

Alcoa has played a major role in the development of this new industry. Since the installation of its first can reclamation furnace in Warrick County, Indiana, in 1973, the Company has invested over $200 million in facilities and equipment to efficiently retrieve and remelt aluminum cans. Much of that investment has been "betting on the come," -- taking a risk around the potential success of voluntary recycling. I believe that's an important point. For recycling of any material or package to succeed, the industries involved must be willing to take risks, be creative and invest both time and money.

Four years after installation of the first remelt furnace, Alcoa Recycling Company was incorporated to create a dedicated, continuing mechanism to encourage aluminum can recycling. Today, we employ over 100 people, operate 37 buying and processing locations and serve as a market for more than 700 third parties buying cans from the consuming public. We also spend millions of dollars each year on public relations, advertising and promotional activities to create a heightened awareness of recycling.

Why has Alcoa for more than 20 years devoted such resources to recycling? The initial spurs were energy conservation and litter control. Recycling an aluminum beverage can saves more than 95% of the energy required to make that same can from bauxite ore. And, as aluminum can sheet is an important source of revenue for Alcoa, we did not and do not want the package made from our material to be a part of the U.S. litter problem. Neither of these objectives has changed. But, we've added a few more. Recycling saves not only energy, but also raw materials, most of which are imported from offshore. We also like to believe that recyclability is a positive factor in the consumer's choice of package for beer and soft drinks. Perhaps more importantly, Used Beverage Cans (UBCs) have become an important source of metal for us -- an above-ground mine. We believe that demand for UBCs will exceed supply at least through this century. No U.S. primary aluminum producer has plans to expand domestic smelting capacity, so this alternative source of metal should become more and more important. There is no need to fear that an increase in recycled cans will glut the market.

Aluminum can recycling today displays a fairly extensive infrastructure. The consumer or can collector takes his/her cans to a scrap dealer, independent recycler, or in some areas to a food store or beer distributor. Here the cans are weighed and the consumer is paid. Today, the street price for aluminum cans is between $.26 and $.47 per pound, or 1 cent to 1.81 cents per can. The cans are then processed through a flattener which flattens them and blows them into the back of a semi trailer for storage and transport. Or, they may be densified (compressed into a block with density of 35 to 45 lbs/cubic foot) and loaded onto a truck. In the Alcoa Recycling Company system, these trailers are then taken to one of a number of processing plants which bale, densify or shred the flattened cans, and load them onto railcars for shipment to one of Alcoa's can reclamation plants in Indiana or Tennessee. In the can reclamation process, the cans are put through a high-powered shredder, and then go into a delacquering kiln to burn off the coatings and paints on the cans. The resulting material is remelted and cast into ingots. Later, it will be rolled into new can sheet. Since every pound of used beverage cans we buy is converted into new can sheet, the quality of this material is critical to us from an economics and safety standpoint. Contaminants such as lead cannot be allowed to find their way into sheet for the beverage cans from which we will drink. The presence of plastic, paper, oil or other materials can cause explosions and fires in our plants, putting the safety of our work force at risk.

We believe there are three prerequisites for a successful recycling effort: 1) consumer awareness, 2) convenience, and 3) price. The successful combination of these three has led to the 50%+ aluminum can recycling rate in the United States. But, there is still another 50% of aluminum beverage containers waiting to be recycled. We continue to invest the dollars required to heighten awareness and create a recycling culture, as well as establish the facilities to make recycling more convenient in many areas of the country.

We believe that price is not a motivator for large segments of the middle and upper income groups in the U.S. However, we have begun to reach these groups by supporting charitable recycling activities. We are asking people to save their aluminum cans and donate them to a charitable group which can benefit from the proceeds of their sale. We have a wonderful example in a program called Aluminum Cans for Burned Children. More than 20 of these programs are now in operation in cities like Atlanta, Cleveland, Newark and

Pittsburgh. Although many of them are fairly new, these programs will recycle more than 26 million cans in 1987 -- and contribute substantially to the accelerated recovery of young burn patients in the participating cities. We hope to add Washington, D.C., to the list of these cities within the month. We feel that with sufficient publicity, any charitable organization can increase its fundraising by asking people to donate what they have considered their trash, instead of cash.

There is no reason why aluminum cans should be a part of any consumer's, or any municipality's garbage. Although aluminum cans are less than 1% of the municipal waste stream, they are and will continue to be part of the solution to, not a part of the litter and landfill problem.

We are a small part of the packaging explosion in the United States, but at the risk of sounding smug, I'll suggest that we may be somewhat of a model for other industries. The steps on the road to reducing the amount of solid waste which must be landfilled are fairly clear. As with Alcoa, material suppliers must be responsible for ensuring the recyclability of packages made from their products. They initiate the scrap loop, and they should help to close it. All producers of packaged food and beverages must aggressively work toward 100% technical and economic recyclability of their packages. The Federal and State governments can assist this process by encouraging recycling education at an early age in our schools. State and local governments can remove the zoning and other barriers which exist in many communities against the establishment of recycling centers. And, lawmakers considering restrictive packaging legislation should consider that all packages are not created equal in terms of their voluntary recycling history.

Ironically, the current landfill crisis is focusing some much-needed attention on recycling. In states like New Jersey, which recently passed an innovative, mandatory recycling law, Alcoa Recycling Company is working intensively with hundreds of municipalities now starting curbside segregation and collection of recyclables. Both our experience and our equipment are at their disposal as they work to respond to the law and reduce the amount of solid waste being transported to costly, rapidly shrinking landfills. We hope and believe that the new found urgency on this topic will help us to boost the national aluminum can recycling rate to 65 or 70% in the next few years.

I believe it's also worth mentioning that the U.S. aluminum can recycling effort is viewed as such a resounding success that we are now exporting our expertise. Alcoa is part of a consortium of five leading aluminum companies about to undertake a major recycling effort in Great Britain, Italy, Greece and the German-speaking countries. Australia already boasts a 50% recycling rate, and Japan has reached 40% recycling of aluminum cans.

Mr. Chairman and Members of the Subcommittee, thank you again for the opportunity to testify on this very important topic. I will be happy to answer any questions or supply written information for the record.

ALUMINUM COMPANY OF AMERICA
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ALCOA

October 8, 1987

The Honorable Max Baucus, Chairman
Subcommittee on Hazardous Wastes & Toxic Substances
Committee on Environment and Public Works
United States Senate
Washington, D. C. 20510

Dear Mr. Chairman:

Thank you again for the opportunity to testify before your subcommittee on the role of aluminum can recycling in solid waste management. During the hearing you raised some questions about the opportunities for recyclable aluminum food cans and, in response, I want to provide you with some information for the record.

Currently, approximately 5% of the 27 billion food can market is in aluminum. This is primarily small cans for items such as canned meats. The major challenge in the food can market is the production of a material which can handle a wide range of different products, with varying characteristics such as levels of acidity, running through very different processing systems.

Over the past five years, Alcoa has devoted considerable effort to advancing technology for the aluminum food can and we have made significant progress. For example, one breakthrough has been the development of a coating system capable of withstanding the attack of aggressive acidic products, such as sauerkraut.

We feel we have met the challenge of the food can. By early 1988, we estimate that close to 10% of the market will be in aluminum, due to the conversion of several steel can lines. In addition, by the middle of 1988 a 350 million can-per-year line will be in operation as part of a joint venture between Alcoa and Central States Can Company. Our goal today is to have 25% of the food can market by the mid-1990's.

The recent focus on recycling, fueled by the Islip garbage barge incident, has helped us in our effort to market food cans, as well as to recycle beverage cans. For example, a number of major food companies are expressing a new concern about the future recyclability of their packages.

Page 2

We appreciate the attention you are bringing to this important subject and thank you for letting us put the aluminum can recycling story on the record. I am enclosing an Aluminum Association fact sheet on aluminum food and beverage cans which may be of interest. We would be happy to provide any additional information you require.

Sincerely,

A. Irene Schmidt

A. IRENE SCHMIDT
EASTERN REGIONAL MANAGER
ALCOA RECYCLING CO., INC.

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Enclosure

# ALUMINUM FOOD AND BEVERAGE CANS

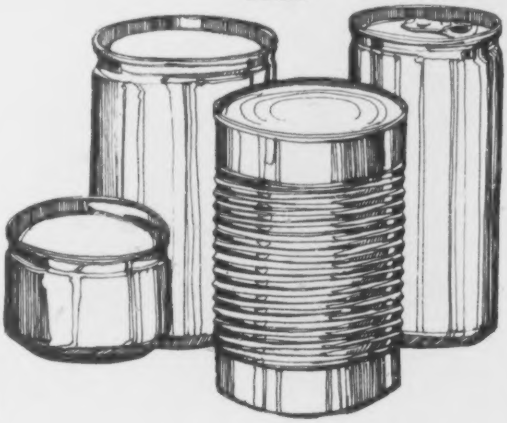
**Facts**

August 1985

***Aluminum cans are near-perfect containers: lightweight, impermeable, safe, recyclable. Most beverage cans are already aluminum. Now, with new technology, aluminum cans promise to protect a growing number of foods.***

**Here are the facts:**

- Americans love cold, fizzy drinks—especially in aluminum cans. In 1984, more than 60.4 billion beverage cans were shipped in the United States—more than 255 cans for every American. More than 94 percent were aluminum.
- The aluminum can's popularity is easy to understand. It does not impart any taste. It keeps flavor and carbonation in, and harmful oxygen, light and moisture out. It's shatter-proof. And it's safe; any tampering is apparent.
- Aluminum cans were introduced in the 1950s. Consumers were quick to appreciate them. By 1970, aluminum claimed 22 percent of the beverage can market. By 1977, half the beverage cans were aluminum. By 1984, aluminum was used for about 87 percent of the soft drink cans and more than 99 percent of the beer cans.
- An aluminum can is seamless and has a lid on only one end. Its bottom and walls are formed in a single piece by shaping and stretching thin sheets of aluminum. Aluminum cans are produced in seconds, and are run through filling machines at rates exceeding 1,800 per minute.
- The walls of a typical aluminum beverage can are only a few thousandths of an inch thick, but they're strong. The pressure of carbonation in the beer or soft drink inside helps to stiffen the sealed can.
- The first 12-ounce aluminum can weighed just over one ounce, empty. A steel can weighed more than twice as much, while an equivalent glass bottle weighed more than nine times as much. Manufacturing advances and innovative designs like the shaped neck have reduced the weight of the aluminum can still more, to about six-tenths of an ounce.
- The light weight of aluminum cans makes them easier to ship in bulk to retailers, carry home in a grocery bag and collect later for recycling. And aluminum cans need less protective packaging than glass bottles. As a result, the amount of beverage delivered in bottles by two trucks or rail cars can be delivered, in aluminum cans, by only one. A 1976 study showed that aluminum cans reduce shipping energy and distribution costs by about 56 percent, compared with glass bottles.
- Aluminum offers other energy savings as well. Aluminum is an excellent heat conductor. It takes considerably less energy to fill, pasteurize and chill 12 ounces of beverage in an aluminum can than in a glass bottle; and it takes less energy to refrigerate after you get it home.
- Aluminum cans continue saving energy even after they've been used. More than half of them are returned for recycling each year; and recycling aluminum takes only five percent as much energy as producing new aluminum from ore.
- And aluminum is valuable. Consumers have earned more than one billion dollars by returning empty aluminum cans for recycling—at least $250 million in 1984 alone. There is, however, no truth to the occasional rumor that collecting detachable pull-tabs can pay for the use of kidney dialysis machines.
- Recycled aluminum often reappears in new beverage cans, remelted and good as new, in a virtually endless cycle that saves energy each time around.
- A variety of non-beverage foods have been packaged, for years, in aluminum cans. In 1984, almost 1.4 billion aluminum cans were used for meat and poultry products, dairy products, fruit and vegetable products, seafoods, single-serving snacks and pet foods.
- New opportunities for aluminum food cans are being made possible through stronger aluminum alloys, innovative designs and a new nitrogen-injection process. Nitrogen is a colorless, odorless, tasteless and, above all, harmless gas. In fact, it is the main component—more than three-quarters—of the air we breathe. In one new aluminum canning process, liquefied nitrogen is injected into the can just before it is sealed. The nitrogen quickly warms up, evaporates, and creates gas pressure that stiffens a thin-walled can, just like the carbonation in beer and soda.
- Aluminum cans made up a little over five percent of the non-beverage can market in 1984. With these new techniques, aluminum cans offer the same advantages for food canning as they do for beverages, and are poised for market expansion. In a nationwide 1984 survey among adult consumers, 87 percent said they would buy more food in aluminum cans as the new packaging becomes available.



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**Statement**

**of**

**Mr. Lewis R. Freeman, Jr.**

**Vice President, Government Affairs**

**of**

**The Society of the Plastics Industry, Inc.**

**before the**

**Hazardous Waste and Toxic Substances Subcommittee**

**of the**

**Committee on Environment and Public Works**

**United States Senate**

**October 1, 1987**

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PAST PERFORMANCE—FUTURE PROGRESS

I am Lewis R. Freeman, Jr., Vice President, Government Affairs, for the Society of Plastics Industry, Inc. Accompanying me is H. Patrick Toner, Director of Technical and Regulatory Affairs for the Society.

We thank the Subcommittee for the opportunity to present views on the handling and disposal of municipal solid waste in this country. The SPI represents the manufacturers of plastics raw materials, fabricating machinery and molds, and finished plastic products. With nearly 2000 members, we are the major trade group for the U.S. plastics industry. Our companies represent all segments of the U.S. plastics industry, including raw material producers, distributors, manufacturers of processing machinery, moldmakers, and plastics processors and fabricators. The latter group, the processors, represents the vast majority of our ranks.

The SPI Board of Directors last month adopted a new policy statement on the municipal solid waste issue. The statement acknowledges the growing concern about solid waste disposal by many states and communities. It further states that "SPI believes municipal solid waste disposal methods should be economically prudent, environmentally sound, and should take into consideration the needs of each community."

Continuing, the new SPI policy supports "a comprehensive management scheme for disposal of municipal solid waste, involving the following elements:

"* Recycling of materials after their originally-intended use has been satisfied, either as individual materials or co-mingled products;

"* Waste-to-energy incineration with resource recovery; and

"* Landfill disposal where recycling or incineration are not appropriate or effective."

A copy of the full policy is attached to this testimony.

The most important feature of SPI's policy on municipal solid waste is that it embraces the concept that a combination of solutions will be required in the future to handle the nation's solid waste, with the formula differing to some degree from community to community and from state to state.

Our industry has been the subject of considerable press attention in the past year on the issue of solid waste. We have been construed by some to be the major cause of a "national solid waste crisis". It has been said by others that our industry is against recycling as a means of handling waste, or that we manufacture products that cannot be recycled. It has been claimed by still others that our products present an environmental threat when they are incinerated, or that plastics in a landfill are undesirable because they do not degrade. All of these views, we believe, are inaccurate.

Plastics are indeed a larger portion of the municipal solid waste stream than they were ten or fifteen years ago because there are more product applications that utilize our materials. The Franklin Associates study done last year for the Environmental Protection Agency estimated all plastics composed 7.2% of the municipal waste stream in 1984 (distribution by weight of waste discarded after materials recovery has taken place). This is up from an estimated 6% in 1980. According to the study, plastics are expected to reach 9.8% of the waste stream by 2000. However, even then, 90% of the municipal solid waste stream will be materials other than plastics. Looking at just plastics packaging, its share of the municipal solid waste stream was estimated to be 3.7% in 1984, rising to 5.2% in 2000.

We believe there are solid waste disposal problems in many communities because 1) as a society we are using and disposing of an increasingly larger amount of materials, and 2) the most prevalent method of disposing of most of this waste, landfilling, is no longer viable in many communities due to the unavailability of additional or environmentally acceptable space.

A greater dependence must be placed upon recovering the value of post-consumer materials by recycling them for other uses, or through waste-to-energy incineration. To that end, I wish to comment upon SPI views and activities on both of these parts of the solid waste disposal solution.

## Recycling

SPI's new municipal solid waste policy supports the recycling of plastics waste whenever "it is economically and technically feasible to do so." Continuing, it states: "The SPI supports expanded research and development to increase the recycling of plastics, through the Plastics Recycling Foundation and other appropriate efforts. We also encourage wider use of products made from recycled plastics whenever practical."

The industry has long recycled its industrial scrap waste at the processing plant level, and in recent years has increasingly taken an interest in developing viable technologies and markets for recycling post-consumer plastics waste. The most successful post-consumer recycling experience in our industry has been the plastic bottle, in particular the beverage bottle made from polyethylene terapthalate (PET). By 1986 some 20% of the more than 600 million pounds of PET bottles produced were recycled into such products as fiberfill and industrial strapping. On a smaller scale there is also some recycling of plastic milk bottles made from high density polyethylene, though exact figures on the amount of product being recycled do not exist. A brochure recounting case histories of some of our recycling successes is attached to the testimony. Mindful that more must be done to further the technology, systems and markets for recycled plastics, the SPIs Plastics Bottle Institute joined with several of its members to help organize in 1985 the Plastics Recycling Foundation. The Foundation is an independent, non-profit foundation that exists for:

1) Sponsoring research to develop and improve plastics recycling;

2) Operating demonstration and research facilities for recycling plastics materials; and

3) Disseminating information on recycling technology

The Foundation's major work has been to sponsor the Center for Plastics Recycling Research at Rutgers University, as well as research projects at the New Jersey Institute of Technology, Michigan State University and Toledo University. The Foundation has successfully developed and made available for licensing a recycling technology system for PET bottles that will hopefully broaden the number of companies involved in recycling plastics. Two major conferences have been held to communicate with potential users about PRF sponsored technological advances, the second of which occurred just yesterday at Rutgers University.

More recently, the Foundation has purchased special equipment to embark on the furtherance of research on recycling mixed plastics, that is products containing several different kinds of plastics. This equipment has already been proven in Europe, where numerous articles such as lumber and fencing are being made from recycled mixed plastics and sold commercially. And, contracts have been let this year to conduct field trials on projects to improve collection systems for recycling plastics in municipal solid waste.

For your further information about the Foundation, I attach a copy of the 1987 Annual Report of the Plastics Recycling Foundation.

Another effort to advance plastics recycling that is worth noting was the formation this past summer of the Plastic Recycling Corporation of California (PRCC). The PRCC was organized to ensure that an effective statewide plastic recycling program be developed to comply with California's new beverage container recycling and litter reduction law.

I wish to offer a final word about plastics and recycling. It is true that a smaller percentage of plastics materials entering the waste stream are recycled than such competing materials as paper, glass and aluminum. Some people have therefore concluded from this statistic that either plastics cannot be recycled or that the industry just doesn't want to go to the trouble to make it happen. Both suppositions are incorrect.

Plastics are recyclable, but technologies to do so differ from plastic to plastic, as do the economics of collection and markets for reuse. While the extensive use of our materials in most markets is less than three decades old, and in many packaging applications less than a decade old, we have begun to respond to the social need to recycle. The plastic beverage container is a good example, having attained a 20% recycling rate in just eight years since its introduction in 1979.

As an industry, we are pledged to continue to further research and development in making plastics recyclable and recycled whenever practicable to do so.

## Waste-to-Energy Incineration

The SPI supports waste-to-energy incineration as an economically efficient and environmentally sound method for disposing of a majority of our nation's solid waste. New, environmentally safe municipal waste incinerators can and should handle a significantly larger portion of the nation's solid waste stream.

We do not view waste-to-energy incineration as an alternative solution to recycling, but rather as the major part of the solution for society's handling of solid waste. Markets do not exist for all materials to be recycled, and eventually even those materials that are recycled will cease to have additional useful lives. However, to the extent that recycling can be done with economic efficiency, it should be. What is not recycled, though, can still have value as a fuel.

The presence of plastics in the waste stream is a unique asset to the energy recovery process in an incinerator. Because they are derived from petroleum by-products, plastics enhance the fuel mix of a municipal waste incinerator. The Btu value of some plastics exceeds that of coal.

Recent attention to incineration as a means of disposing of municipal solid waste has raised the question of air emissions resulting from such facilities. We share the concern, but believe the problem is solvable and need not stand in the way of building new waste-to-energy facilities.

We have recently adopted policy and pursued programs to underscore that belief. First, SPI's recently adopted municipal solid waste policy endorses the concept of national emission standards for municipal solid waste incinerators.

Second, we're cognizant of questions that have been raised about the performance of some plastics when incinerated. For this reason, SPI's Vinyl Institute was one of several participants in an extensive research project on combustion practices in solid waste incinerators. It was initiated in 1986 by the New York State Energy Research and Development Authority (NYSERDA) and conducted under the technical auspices of the American Society of Mechanical Engineers. Other co-sponsors included the New York Power Authority, the New York/New Jersey Port Authority, environmental agencies in California, Florida, New Jersey, Connecticut, and Massachusetts, the U.S. Department of Energy, the Ontario Ministries of the Environment and Energy, and the Association of Plastics Manufacturers in Europe.

The results of the study were announced in early August. The NYSERDA project focused on how a wide range of combustion conditions and different types of refuse quality affect the amount of dioxins and furans formed and destroyed during the combustion process. Of relevance to our industry was the study's finding that there was "no statistical relationship...between the amount of polyvinyl chloride (PVC) plastic in the garbage and levels of dioxins or furans after burning under good combustion conditions."

## Landfilling

While some 90% of the nation's municipal solid waste is presently landfilled, this is a disposal method that clearly cannot be depended upon to the same degree in the future. However, we recognize that landfilling will continue as a method for disposing of incinerator ash, noncombustibiles, and for municipal solid waste in some communities. In those latter instances, the presence of plastics in a landfill is environmentally safe.

There has been some criticism leveled at plastics in a landfill, claiming that plastics are undesirable in a landfill because they do not degrade. We would challenge the assumption that is is necessarily desirable for materials to degrade in a landfill. We are all aware of concerns about methane gas generated by degrading materials in landfills and for concerns about groundwater contamination by leachates from landfills. It does not appear to us that stable, non-degrading materials in landfills are a disadvantage.

While plastics are not inherently degradable, research has been conducted in recent years to advance the ability to make plastics degradable for certain specific applications. A major conference conducted by the SPI in June of this year underscored the importance that this research be continued, and also echoed the admonition that product performance not be compromised just to achieve a desired disposal characteristic.

In short, while degradability may be a desired feature for some products in certain circumstances, it is not part of the solution to the solid waste dilemma faced by many communities.

An additional point about landfills is worth noting. Plastics are often a desired liner for municipal solid waste landfills to preserve their integrity. Recently, their use has been extended to capping landfills, as well.

In conclusion, The Society of the Plastics Industry believes that the time has come for an end to the excessive dependence our nation's communities have placed upon landfills as a method for dealing with municipal solid waste. Greater emphasis in the future must be placed upon the recycling of materials and the recapturing of fuel value through waste-to-energy incineration, turning to landfills when these methods are not appropriate or effective. SPI is dedicated to pursue policies and programs for the plastics industry to help make that happen.

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## POLICY STATEMENT ON MUNICIPAL SOLID WASTE DISPOSAL

As adopted by the SPI Board of Directors

9/18/87

### OVERVIEW

The Society of the Plastics Industry recognizes that many states and communities are addressing the problem of municipal solid waste disposal. We further recognize that the prevalent disposal method - landfilling - is no longer acceptable or available in many localities. The SPI believes municipal solid waste disposal methods should be economically prudent, environmentally sound, and should take into consideration the needs of each community.

SPI supports a comprehensive management scheme for disposal of municipal solid waste, involving the following elements:

- Recycling of materials after their originally-intended use has been satisfied, either as individual materials or co-mingled products;
- Waste-to-energy incineration with resource recovery; and
- Landfill disposal where recycling or incineration are not appropriate or effective.

Plastics have become a major material from which products used by society are made. The Society of the Plastics Industry supports the responsible use of its industry's materials and the proper disposal of those products when they enter the waste stream.

(over)

## RECYCLING

Recycling plastics waste should be done when it is economically and technically feasible to do so. The SPI supports expanded research and development to increase the recycling of plastics, through the Plastics Recycling Foundation and other appropriate efforts. We also encourage wider use of products made from recycled plastics whenever practical.

- CONTAINER CODING

  SPI pledges to develop and encourage the implementation of an industry voluntary classification system for certain plastic containers. Such a system would be designed to facilitate, where appropriate, the separation and recycling of plastic containers on the basis of resin content.

- BEVERAGE CONTAINER DEPOSIT LAWS

  The SPI does not take a position for or against mandatory beverage container deposit laws. We support recycling programs for plastic beverage containers in states with and without deposit laws.

## WASTE-TO-ENERGY INCINERATION

An economically efficient and environmentally sound method of disposing of a majority of society's municipal solid waste is waste-to-energy incineration. The presence of plastics in the fuel for a waste-to-energy facility significantly enhances its efficiency because of the high BTU content of plastics. The SPI supports the concept of national emission standards for municipal solid waste incinerators.

## LANDFILLING

The SPI believes that the best way to dispose of plastics waste is through recovery of fuel value with waste to energy incineration or reclaiming raw material value by recycling. However, we recognize that landfilling will continue as a method for disposing of incinerator ash, noncombustibiles, and municipal solid waste in some communities. The presence of plastics in a landfill is environmentally safe.

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# WRITTEN TESTIMONY
OF THE
SECONDARY LEAD SMELTERS ASSOCIATION, INC.
BEFORE THE
SUBCOMMITTEE ON HAZARDOUS WASTES AND TOXIC SUBSTANCES
OF THE
SENATE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

OCTOBER 1, 1987

Good morning, my name is Michael L. Sappington and I am appearing today before the Hazardous Waste and Toxic Substance Subcommittee in my capacity as Executive Secretary of the Secondary Lead Smelters Association, Inc. The Secondary Lead Smelters Association, which I shall refer to as the SLSA, is a national non-profit trade association that represents the interests of the secondary lead recycling industry.

The SLSA was established in 1973, partly in recognition of the growing awareness in this country of the need to protect the environment. The SLSA represents its member companies, which produce approximately 80 % of the domestic secondary lead capacity, before the governmental regulatory agencies and assists its members in complying with environmental regulations. The SLSA is an environmental trade association; that is, its principal focus is on environmental issues and it devotes a considerable amount of its energies to ensuring that the industry's operations are conducted in an environmentally beneficial manner and that the benefits of recycling are recognized and encouraged by regulatory agencies.

Prior to addressing the specific questions identified by the subcommittee, I would like to take a brief opportunity to discuss the history of the secondary lead recycling industry and the problems it has encountered since the passage of the Resource Conservation and Recovery Act. The secondary lead recycling industry is this country's major producer of lead. Members of the SLSA produce lead through recycling activities; specifically, they recover lead and other valuable materials from spent lead acid batteries and other lead bearing scrap. Secondary lead amounts for over 50 % of the approximately 1,100,000 tons of lead consumed annually in the United States.

Approximately 70 million spent lead acid batteries are disposed of each year in this country. Contained within these batteries are millions of gallons of sulfuric acid and over one billion pounds of lead. Members of the SLSA collect these spent lead acid batteries and reclaim the lead for resale back to the original battery manufacturers and other customers. In addition, the plastic battery cases are also reclaimed, as plastic represents a valuable commodity that can be reused in the manufacturing cycle. The spent acid is collected and either safely neutralized or sold to users of dilute sulfuric acid. Thus, the secondary lead recycling industry collects and reclaims spent lead acid batteries, whose improper disposal could create substantial environmental problems for the country.

Unfortunately, since the early 1980's, the industry has incurred significant contraction as a result of environmental and economic factors. As of 1980, there were approximately 60 secondary lead recycling plants in this country. Today, there exist only 23 plants in operation. The SLSA recognizes that some of the plant closings are a reflection of economic factors such as overcapacity or undercapitalization. However, it has been the experience of the SLSA that as a result of EPA's implementation of the Resource Conservation and Recovery Act, several plants have had no other recourse but to cease operations since they cannot comply with the stringent requirements imposed upon it by the EPA. I will discuss this issue in more detail later in my testimony.

The result of the shut-down of over 60 % of the plants in the industry has meant that a significant percentage of the spent lead acid batteries being disposed of each year in this country are likely being disposed of improperly. There is much debate within the industry concerning the specific number of batteries that are not being recycled. It must be emphasized that regardless of the specific number of spent batteries that are being improperly disposed of in this country -- whether it is 10 million or 30 million batteries, there is a significant percentage of batteries being placed into municipal landfills or just directly into the environment. This, in the SLSA's opinion, is unacceptable. Unless consumers and retail distributors are encouraged to collect and make spent lead acid batteries available to the secondary lead recycling industry and unless the government assists the industry in this endeavor, the country will be confronted with an increasing number of spent lead acid batteries being improperly disposed of that may create environmental problems.

My final comment before addressing your specific questions attempts to anticipate one likely response to this testimony, which is: why do we need lead acid batteries? Study after study has documented that there is presently no feasible substitute for the lead acid battery and that no substitute could be placed into mass production for the foreseeable future. Lead acid batteries are used to start every car, truck and bus in the United States every morning. Our national defense is dependent on lead acid batteries as every aircraft, guided missile, submarine or tank have one or more. They are critical parts of telephone and other communications systems, they provide uninterruptable power supplies for life support systems in hospitals and are widely used in load levelling applications in the electric utility industry. The lead acid battery is one of the most efficient power sources known to man. Consequently, this country is dependent upon the lead acid battery and in recognition of that fact, we need to insure that such batteries are properly disposed at the end of their useful life. The SLSA maintains that recycling of the spent lead acid battery is the most appropriate environmental response to this issue.

Senator Baucus and other members of the subcommittee, I appreciate your willingness to consider my introductory remarks before addressing the specific questions that you have identified for discussion. Initially, you have inquired about the problems the secondary lead recycling industry is experiencing in managing solid waste. One unique problem confronting members of the SLSA is the position of the federal EPA. That agency has concluded that our industry's raw materials are deemed not only to be solid wastes, but hazardous wastes notwithstanding the fact that our raw materials are utilized in our production process and are not discarded into the environment. For example, when a secondary lead recycling facility receives a spent lead acid battery, it opens the battery and removes the different parts of the battery for temporary placement into group piles. Materials from the group piles are then fed into the facility's furnace for smelting into lead. Moreover, the materials are managed in an environmentally safe manner as they are stored on concrete pads usually with overlying roofs, and drainage is collected and transported to the facilities' wastewater treatment plants. Unfortunately, federal EPA has deemed that the spent lead acid battery and its components are hazardous waste. Thus, members of the SLSA are required to comply with the permitting requirements of RCRA. This position is inconceivable to me; in fact, I'm not aware of any other situation where an industry's raw materials are so regulated and that its raw materials are deemed to be hazardous waste.

Furthermore, with respect to the specific problems we are experiencing with our solid waste, I must again refer you to a proposed rulemaking by the federal EPA where it proposes revising the hazardous waste characteristic test for toxicity (known as the extraction procedure test), which would effectively render the solid waste generated from a secondary lead recycling plant hazardous waste. A by-product of the industry's smelting process is a solid waste referred to by the industry as slag. Presently, the slag generally does not exhibit the characteristics of hazardous waste and is disposed of in industrial landfills or disposed of on-site. However, under the proposed EPA rulemaking, EPA seeks to revise the hazardous characteristic test for toxicity so that the result will be that our industry's slag will likely be deemed hazardous. The result of such an action, if eventually promulgated, will mean that virtually every remaining plant in the industry will cease to operate. Industry, in effect, will be confronted with two unacceptable alternatives. First, industry could elect to transport its slag waste to hazardous waste permitted landfills. However, as you Senators know, the costs of such shipments are prohibitive. Moreover, there is limited landfill capacity available to our industry and, in certain parts of the country, there exists no permitted landfills. As a second choice, the industry could manage the waste on-site but since it would now be deemed to be hazardous, industry would have to obtain non-sudden environmental impairment liability insurance. This industry, as many industries in the country have experienced, cannot secure such insurance.

It also should be noted to the members of the subcommittee that our principal competitor, the primary lead smelting industry, has been exempted from complying with RCRA at least with respect to disposal of its slag waste, even though the nature of the material is identical to secondary slag. However, I agree with Congress in granting the so-called mining waste exclusion to our friends in the primary smelting business. Raw lead ore, galena, contains about five percent lead when it comes out of the ground. The slag that results from both the primary and the secondary smelting process, which is commonly landfilled, contains about one percent lead. This material is no more leachable and no more a threat to the environment than naturally occurring galena.

I have been associated with the lead industry for fifteen years and I know of no incident where either primary or secondary lead slag disposal has ever caused an environmental impairment by itself. Yet if EPA persists in its efforts to promulgate the TCLP, and in its efforts to do away with the Mining Waste Exclusion or Bevill Amendment, hundreds of thousands of tons per year of virtually inert rock will be classified as a "hazardous waste". The consequence of this could be drastic in my opinion. The entire U.S. lead industry could become a nonviable entity.

Another issue identified by the subcommittee concerns means to reduce either the volume or toxicity of solid waste. One response to this issue would be the promotion of the recycling of spent lead acid batteries. The volume and toxicity of wastes from the secondary lead smelting process is obviously much less than from the spent lead acid batteries and other lead scraps themselves. If the government encouraged consumers and distributors of original batteries to collect and make available or return spent lead acid batteries to the recycling industry, we could successfully eliminate one source of waste that is presently being disposed of in municipal landfills.

As for another concern of the subcommittee, there are numerous impediments to the reduction of the volume or toxicity of waste. For example, I have shared with you today several EPA policies or determinations which adversely affect the secondary lead recycling industry. In addition, there is growing difficulty in the collection cycle of spent lead acid batteries because of a concern over liability. Historically, one of the principal collection sources of spent lead acid batteries for the secondary lead recycling industry has been the scrap processing industry. However, this industry for over one year now has generally refused to accept spent lead acid batteries from their suppliers because of a concern over environmental liability. For example, if a scrap process yard collects spent lead acid batteries and acid or lead leaks into the ground from those batteries, that facility could be jointly and separately liable for any clean-up resulting from the releases of the material into the environment. Thus, the scrap processing industry has refused to accept spent batteries which have effectively closed off one source of collection to the secondary lead recycling industry.

With respect to state or federal policies that would address these problems, there must be a statement from Congress to federal EPA that the Resource Conservation and Recovery Act is designed to protect human health and the environment by minimizing the generation and land disposal of hazardous wastes. The most prudent means of avoiding such generation and disposal is through materials recovery and recycling. Accordingly, the agency must be encouraged and instructed not to pursue directives which effectively result in the cessation of operations by recycling facilities or placing recycling facilities at an economic disadvantage to its competitors.

On a state level, states must educate the public that the improper disposal of spent lead acid batteries may create environmental problems. One state, for example, the state of Minnesota, has been very active in this area. The Minnesota state legislature recently passed a bill which requires all retailers of new batteries to accept back spent lead acid batteries. In addition, the legislation prohibits the disposal of spent lead acid batteries in municipal landfills and requires retailers of new batteries to post notices informing consumers of the benefits of recycling spent lead acid batteries. The SLSA has spent several months reviewing state legislative actions with respect to spent lead acid batteries and as a result of this survey, we have determined that the response to the problem varies dramatically from state to state. Certain states have taken no action whereas other states, such as Minnesota, are very active in this area.

I trust that these comments are responsive to the issues that are being addressed and considered by the subcommittee. I am prepared to answer any additional questions that you may have or provide further testimony if appropriate. The SLSA is committed to recycling. We are hopeful that the subcommittee can identify mechanisms to promote recycling and to ensure the survival of our industry. On behalf of the Secondary Lead Smelters Association, Inc., I appreciate the invitation and your willingness to consider these remarks.

# TESTIMONY OF THE
# CAN MANUFACTURERS INSTITUTE
# BEFORE THE SENATE COMMITTEE ON ENVIRONMENT & PUBLIC WORKS
# SUBCOMMITTEE ON HAZARDOUS WASTE & TOXIC SUBSTANCES

October 1, 1987

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Mr. Chairman and members of the Subcommittee, the Can Manufacturers Institute (CMI) is pleased to provide testimony to the Subcommittee as it examines national policy on solid waste management. Recent attention focused on solid waste disposal problems has made your hearings both timely and vital to the nation's future.

CMI is pleased to report to you that the all-aluminum beverage can continues to lead the way in recycling. This year, once again, well over 50% of all aluminum cans sold will be returned and recycled. We are unaware of any other consumer package which has achieved 50% recycling. We have provided to the Subcommittee staff background information which explains in some detail how our industry has achieved this level of recycling and our plans for achieving even higher levels.

We believe that voluntary aluminum can recycling, together with the concerted efforts of the can and aluminum industries, has demonstrated that packaging can be recycled efficiently and in quantity with significant benefits in solid waste reduction, reduced energy consumption, and convenience for the consumer. We are hopeful that the Federal Government will be supportive of our efforts to involve more Americans in aluminum can recycling, especially as we begin the "Great Aluminum Can Roundup" which is running this month, October 1987. This innovative program has recruited hundreds of community groups in seven states (Florida, Indiana, Ohio, Oklahoma, Tennessee, Washington, and Wisconsin) to recycle aluminum cans. These groups will be earning significant amounts of money at the same time they are getting more people involved in recycling. The "Roundup" provides these groups with everything they need to conduct a successful recycling/fund raising drive, and CMI hopes to expand this program in the coming years.

Aluminum cans account for over 2/3 of the 100 billion cans produced annually. Most of those 70 billion cans are beverage cans, with the remaining number, approximately 29 billion, being steel food cans.

With respect to steel cans, a great deal of progress has been made in recent years. According to the Steel Can Recycling Association, Inc., 44 of the operating resource recovery plants in operation process steel cans and 62 magnetic separation retrieval plants are now in the planning or construction stage. Crown Cork and Seal, a major beverage can producer, sponsors steel (bi-metal) can recycling in several states where it sells such cans.

In addition, CMI has been involved since 1979 in a cooperative program with the FDA and the National Food Processors Association to eliminate lead solder in the manufacture of food cans. When the program began, over 90% of food cans utilized lead solder while today less than 20% use this method. Can manufacturers have rapidly switch to newer technologies such as welded cans and 2-piece cans to replace the lead soldered can. The FDA has praised this program for its success in eliminating lead solder from food cans, and consequently the nearly complete elimination of cans as a source of lead intake. At this point, FDA surveys confirm that lead from cans has been reduced to background levels in most food products.

We would like to address the questions posed in your letter of September 17, 1987 in some detail.

1. The can industry believes that its recycling programs are effectively managing the solid waste it produces. We believe that more public attention, as well as information, will encourage greater numbers of people to voluntarily recycle on a regular basis.

2. Obviously, all-aluminum cans are the easiest and most efficient package to recycle. Packages made of two or more materials must be separated into their component parts before they can be recycled. This makes recycling more difficult.

3. We do not believe that cans are the source of any significant amounts of hazardous wastes. Since 1979, the can industry has been engaged in a voluntary program with the Food & Drug Administration to reduce, and eventually eliminate, lead in steel food cans. This program has been highly successful, reducing the number of lead-soldered cans from 95% of production in 1979 to less than 20% in 1987. We expect that lead-solder will be practically eliminated within the next three years.

4. Voluntary recycling is, in CMI's opinion, the best and most promising way to reduce the volume of solid waste. Last year in Delaware, for example, consumers voluntarily recycled 2 out of 3 aluminum cans (4,370,000 pounds) and were paid approximately $1 million for their efforts. Voluntary programs in other states have achieved similar results.

5. Impediments to recycling are impediments to solid waste reduction. A common impediment to recycling is contamination of the scrap material with foreign matter. In aluminum recycling, the presence of dirt, other metals, or plastics are contaminents which either slow or damage the recycling process.

6. We believe that the free market has been and will continue to be the most efficient and most aggressive force in recycling. To the extent that consumers need to be aware of which materials are recyclable and which are not, the Federal or state governments could assist materially by providing a definition of recyclability. We question, for example, whether containers with no history of recycling should be labeled "recyclable".

7. In general, container legislation historically has been a matter for state-by-state regulation. The Federal Government could, however, set an example for state and local governments by encouraging recycling. When purchasing supplies, a preference would be given to recyclable items.

We thank the Committee for allowing us to submit these comments. We stand ready to work with the Committee, with responsible environmental groups and other interested industries in achieving meaningful solid waste reduction.

# Comment for the Record
to the
Subcommittee on Hazardous Wastes and Toxic Substances
of the
Environmental and Public Works Committee
U.S. Senate

on

# Municipal Solid Waste Management
Subtitle D
of the
Resource Conservation and Recovery Act

Submitted October 1, 1987
by the
Glass Packaging Institute

Since America's glass container industry is acutely aware and deeply concerned about the nation's growing solid waste crisis, the Glass Packaging Institute (GPI) appreciates the opportunity offered by the Chairman of the Senate Subcommittee on Hazardous Wastes and Toxic Substances to submit written comment for the record on Municipal Solid Waste Management, Subtitle D of the Resource Conservation and Recovery Act.

GPI represents companies that manufacture glass containers for a wide range of product lines, including food, beer, soft drinks, wine, toiletries, perfume, cosmetics and medicine. The Institute's 31 members and associate members operate 76 plants in 27 states: Alabama, California, Connecticut, Florida, Georgia Illinois, Indiana, Louisiana, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, New Jersey, New York, North Carolina, Ohio, Oklahoma, Oregon, Pennsylvania, South Carolina, Tennessee, Texas, Virginia, Washington, West Virginia and Wisconsin. They are the nation's leading advocates of glass recycling.

In all of its activities, GPI reinforces the industry's commitment to protect the environment, conserve the nation's natural resources, reduce energy consumption and produce quality glass containers for the American consumer. Thus, it should not be surprising that the industry's management and labor representatives together created the Nickel Solution Trust.

The Trust accounts for some $7 million and is supported by the men and women of the glass packaging industry to promote glass packaging and glass recycling activities. The mathematics of recycling is self-evident. Increased glass recycling sends less glass to landfills and thereby eases the solid waste crisis.

## A History of Solid Waste Management

Glass recycling is not a new concept. Glass container plants have long accepted used bottles and jars from the public. More recently, the industry has forged active partnerships with states and localities to establish voluntary centers and curbside collection, as well as provide incentives to recyclers to add glass to their operations.

Glass containers continue to be popular with consumers for a number of reasons. Glass is chemically inert; it doesn't affect the taste of food and beverages. Glass containers allow consumers to see what they are buying and more easily detect product tampering. Glass offers the consumer and the merchant a long, safe, shelf life. With 60 million U.S. households using microwaves, glass has become an even more popular cooking medium; it offers the convenience of heating, eating and resealing in one container. Glass is hygienic. And most pertinent to this Subcommittee's concern, glass is 100 percent recyclable; one glass container can become another glass container which can become another glass container, and so on. The Glass Packaging Institute believes that all parties, public and private, would benefit from a consensus definition of "recycling." Without such language, the term "recycling" remains nebulous, and worse, subject to misuse, intentional or otherwise. One definition we would invite the Subcommittee to consider is as follows:

> A packaging material may be considered "recyclable" if, and only if, it is determined that the material may be reused to make the same product, or a product for which there is an economic and sufficient demand, an infinite number of times.

The glass recycling process is relatively straightforward. Consumers recycle glass through either curbside collection or voluntary recycling centers. The glass containers are then crushed into small pieces called "cullet". Then, glass container manufacturing plants mix the cullet with melted sand, soda ash and limestone to produce new glass containers. Glass manufacturers are currently using as much as 20 percent cullet in their plants. The industry is eager to introduce more and more cullet into their manufacturing process. In 1985, one large manufacturer paid recyclers more than $20 million for 391,000 tons of used glass--the equivalent of more than one and one-half billion containers.

## Comprehensive Curbside Recycling

The 76-day odyssey that the Islip garbage barge took this summer could be viewed as an example of what's to come if the nation does not respond now to the solid waste crisis that is affecting our largest cities and smallest villages.

America's annual trash disposal bill is $4 billion. An alarming 95 percent of the collected garbage is buried in 16,000 landfills. However, one-half of the nation's cities will exhaust their landfills by 1990; many other sites are closing because of environmental hazards or public opposition. EPA studies show that almost every state has a disposal problem somewhere. In less than 10 years, all New York landfills will be closed; 60 percent of Florida's landfills will be shut down in eight years; 973 Pennsylvania landfills have closed since 1970, and the remaining 127 are expected to close by 1991.

Public awareness is lacking this issue. When trash is hauled out of sight, it is out of the public's mind. The solid waste crisis will be the 80's counterpart to ending the energy crisis of the 70's. The solution must be comprehensive, convenient and effective.

The mix of public policy options includes recycling, waste-to-energy disposal, packaging materials restriction, incineration and landfill. Of these, recycling is by far the most attractive -- and workable -- solution.

Comprehensive curbside recycling entails simply separating trash into containers that hold the same recyclable material. Paper may go in one; glass in another; compost in a third. The separated trash is left for regular collection. At least one study shows that this process, called source separation, would take household residents only two-and-a-half minutes per month to carry out.

Comprehensive curbside recycling offers many advantages. It promotes awareness of the solid waste crisis and lets every American--young or old, rural or urban, rich or poor--participate in the solution. It is easy. It works. It is a natural solution to a manmade problem.

Consumers like recycling, and they are likely to accept comprehensive curbside recycling as an innovative solution. In a recent telephone survey of 1,399 households in the Carolinas, 42 percent favored recycling because it conserves resources; 19 percent favored it because it reduces litter. Other reasons for liking recycling were it saves landfill space (18 percent), it conserves energy (9 percent), consumers can get money for their recycling efforts (6 percent) and recycling can save consumers money (6 percent).

GPI applauds the municipalities and states that have mandated comprehensive curbside recycling. In particular, we strongly endorse as a model for all states and the federal government the New Jersey plan which was enacted just this spring.

**The New Jersey Plan**

As this subcommittee has heard in past testimony, the New Jersey bill requires counties and municipalities to enact and enforce ordinances mandating source separation of leaves plus three other items on a recyclable list. The legislature's goal is to reduce the state's solid waste by 25 percent in two years.

In addition to the mandates, the state will appropriate $8 million to a statewide fund that will be used for recycling grants and bonuses to municipalities and counties. This is intended to help local governments improve the recycling materials market. There is also a 50 percent tax credit offered to firms buying certain recycling equipment for use in New Jersey.

GPI agrees with New Jersey Governor Thomas Kean's assessment that this bill is "the nation's most comprehensive mandated statewide recycling statute." Will it work? Three New Jersey localities already prove it will.

- Monmouth County passed a more demanding ordinance than the state bill two months before the state legislation was enacted. As of today, residents there are separating glass, aluminum and newspapers. Monmouth County expects to recycle 35 percent of its solid waste stream.

- Hillsborough began a recycling program in January, hoping to, eventually, reduce 25 percent of the township's solid waste. By the end of the first month, solid waste was reduced 1 percent; by May, the reduction was an impressive 15 percent. Glass collected in January was .4 tons; in May, 31.62 tons of glass were collected in Hillsborough. The program coordinator credits wide participation (including condo and townhouse complexes) and public awareness about recycling for the quick success.
- Camden County has had a mandated recycling program for two years. This program handles solid waste from more than 40 municipalities in three counties; it processes more than 50 tons of recyclable materials daily; 25 percent of the solid waste stream is being recycled. Glass accounts for more than 75 percent of the recyclables sold by weight.

In addition, it is our understanding that the Commonwealth of Pennsylvania is considering legislation which would mandate curbside separation of recyclable materials following the progressive example of the city of Philadelphia.

The Glass Packaging Institute firmly believes that the responsibility for the nation's solid waste disposal crisis should be shared by the packaging industry, all levels of government and consumers. With comprehensive curbside recycling, we can start managing the crisis, thwarting it before it buries us.

## Impediments and Recommendations

The Subcommittee has asked those giving testimony to identify perceived impediments to reducing our nation's volume of solid waste. Frankly, it is our opinion that the absence of leadership from the federal government on this issue is a formidable impediment. These hearings and the re-examination of the Resource Conservation and Recovery Act are a good start to accepting that leadership role and putting the solid waste crisis high on the public agenda.

We urge Congress to consider any and all legislation to promote comprehensive curbside recycling as a means of easing the solid waste crisis. Congress should encourage states to use the New Jersey law as a model to form their own plans.

As a member of the National Recycling Coalition, GPI advocates the Coalition's National Policy on Recycling. We urge the Congress to lead the nation in an aggressive pursuit of change through public education, business and industry policy development, legislation and regulations by every level of government, and individual participation. There should be a transportation policy that makes the cost of transporting secondary materials to or from a recycling facility equal to or less than the cost of transporting virgin raw materials. A tax policy should offer investment tax credits, tax incentives for new applications of waste materials and purchase or secondary use tax incentives.

Further, the Federal government should allocate staff and resources to facilitate the transfer of information about existing and emerging recycling technologies for all commodities currently recyclable from the municipal waste stream, including glass, paper, metal and yard waste. A national policy for environmental quality should include product design for recyclability (to eliminate factors in the design of products which impede the product's recyclability and inject hazards into the recycling process) and maximum enforcement of existing laws that require governmental agencies to procure materials and supplies made from recycled materials.

Finally, the federal government should direct a national policy for recycling education. Elements that should be included are: a Buy Recycled program, labelling requirements on consumer items to identify those products which are recyclable, curriculum development which might get its first ideas from our industry's recycling awareness program that is being used nationwide in the upper elementary grades, and the enactment of a National Recycling Week.

Within the next decade, at least 27 states will face a severe solid waste crisis. But it is a crisis that is not simply a problem for individual states. It is a national emergency which no American can afford to ignore. The Glass Packaging Institute recognizes the magnitude of the solid waste crisis. We stand ready to help the federal government help the nation recycle. The need is clear. Comprehensive curbside recycling is the answer.

WORLD RESOURCES COMPANY
WESTGATE PARK / 1600 ANDERSON ROAD / McLEAN, VIRGINIA 22102 / CODE 703 734-9800

October 15, 1987

Statement for the Record: Thursday, October 1, 1987
Oversight Hearing on Management of Municipal
Solid Waste

Senator Max Baucus
Chairman, Subcommittee on Hazardous Waste
and Toxic Subtances
Senate Committee on Environment and Public Works
Washington, D.C. 20510

Dear Senator Baucus:

Although resource recovery is an unfulfilled national goal, it is still as important as ever to the United States. No single policy is as important as promoting resource recovery if the U.S. is to change the way the U.S. produces and manages hazardous wastes.

Resource recovery is more than a promise. Resource recovery is integrally tied to enhancing all of the following national goals: energy conservation, waste reduction, improved quality of air and water resources, revitalization of domestic industries, international competitiveness, lessening the influence of unreliable and politically unstable foreign sources of critical materials, and encouraging U.S. technological superiority.

Free enterprise in resource recovery is providing new solutions. There are important technological advances being made in the private sector. These advances, if given full opportunity to be implemented in the marketplace, will demonstrate that there are practical alternatives to the landfilling of dangerous substances. New resource recovery companies can profitably operate in today's business environment. But more needs to be done to change the regulatory climate if the full opportunity is to be realized.

Unfortunately the E.P.A. under the current law has not provided the necessary assets to promote resource recovery as a national goal. There still is no fully operational office of advocacy for resource recovery within the organizational structure of the agency. Without significant changes, the U.S.

will fail to meet the challenge. There are many regulatory barriers being erected that are preventing the healthy growth of a resource recovery industry.

WRC's experience over the past decade supports conclusively the statements made in the previous paragraphs. Therefore, World Resources Company is interested in being involved in the upcoming reauthorization process. With over a decade of experience in providing unique resource recovery alternatives to industry and municipalities, World Resources wishes to impact the direction of a reauthorized Resource Recovery and Conservation Act (RCRA) in favor of enhanced resource recovery provisions. If an alternative approach is deemed advisable, a regulatory framework for resource recovery should be created to reflect the distinct characteristics of the emerging and potentially fast growing resource recovery industry and its need for investor confidence and regulatory stability.

The U.S. can solve serious environmental problems concurrently with promoting other national goals. The reauthorization of RCRA could be the blueprint for this effort.

Sincerely,

Peter T. Halpin
Senior Vice President

PTH/ceh

# RESOURCE CONSERVATION AND RECOVERY ACT—OVERSIGHT

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## THURSDAY, DECEMBER 3, 1987

U.S. Senate,
Committee on Environment and Public Works,
Subcommittee on Hazardous Wastes
and Toxic Substances,
*Washington, DC.*

The subcommittee met, pursuant to notice, at 1:24 p.m., in room 406, Dirksen Senate Office Building, Hon. Max Baucus (chairman of the subcommittee) presiding.

Present: Senators Baucus and Graham.

### OPENING STATEMENT OF HON. MAX BAUCUS, U.S. SENATOR FROM THE STATE OF MONTANA

Senator Baucus. The hearing will come to order.

This hearing is one of several on solid waste disposal, particularly, as we look forward to RCRA reauthorization next year.

Our Nation is awash in trash. Every American generates about 5 pounds each day, or about a ton of waste per person per year. For years we Americans have lived in a throw-away society—no deposit, no return, no worry. And those days, I think, are coming to a close. In 1985 alone, Americans tossed 75 million tons of throw-away containers; we spent over $15 billion per year to haul our trash away. Recently, I learned that one town on Long Island raised property taxes by 140 percent in 1 year just to meet the rising cost of taking out the garbage. The homeless garbage barge of Long Island represents the scope of the problem, captured headlines, lead newscasts, and drove home the point that we must get a handle on America's overflowing garbage can.

Long Island is not the only victim of America's use-it-and-toss-it habits. Every State in the Nation has some waste problem that needs to be addressed—overflowing landfills, hazardous waste leakage into water tables, or toxic pollution from incinerator ash.

It is clear that this is no longer a problem confined to the curb, the small communities, the counties, or the States; it is a National problem. The trashing of America must stop. Tougher Federal policies are necessary. We need more strict standards for landfills. We need to better design packaging for recycling. We need to control emissions and disposal of incinerator ash that contains hazardous wastes. And, we need to remove toxic substances from packaging.

It won't be easy. Our throw-away habits will be tough to change. But it can be done if leadership from Congress and from the Administration, the Federal Government, State and local communities can work together to solve it.

Local officials are running out of easy solutions to this problem and, unfortunately, EPA, instead of helping people on the front lines, let its solid waste program remain largely dormant. EPA cannot try to skirt around issues confronting them.

For example, with incineration, EPA is proposing that ash not be considered hazardous waste under subtitle C. A faulty interpretation of the law won't make incinerator ash less of a concern to the public. A faulty interpretation won't stop incinerator ash from polluting ground water. The agency's interpretation of 4001(1) deliberately looks only to half the section. Congress extended the household waste exclusion to resource recovery facilities if and only if the owner or operator of such facilities has established procedures to ensure that hazardous wastes are not received or burned at such facilities.

EPA, itself, has concluded that lead acid batteries are the largest source of hazardous waste by weight in municipal landfills. Testing of 700 ash samples found that for fly ash from municipal incinerators, every sample exceeded the EP toxicity level for either cadmium or lead. It was due to this concern over hazardous constituents and waste that Congress crafted the limited exclusion for ash from municipal incinerators. The agency is beginning to answer some of the technical questions surrounding ash, and I commend them for their commitment to providing those answers.

The committee has already signaled a willingness to treat incinerator ash outside the stringent subtitle C program. We want EPA's data but, by the same token, EPA should want Congress to set a clear policy rather than making unsupportable legal interpretations.

And, while we struggle with the problems of hazardous waste and landfill management, let's also turn more attention toward recycling. It is time for recycling to become a byword, not a buzzword in America. I believe it can be done.

In Japan, for example, 50 percent of all waste is recycled. Of the remaining 50 percent, 67 percent is incinerated, 30 percent landfilled, and the remaining 2 percent handled by other means. Oregon and Seattle, Washington, have excellent recycling programs, each enjoying a recycling rate of over 20 percent. That's good, but I think we have to do more. And if it means creating incentives in Federal law to move the Nation toward recycling, I support it.

There is no single solution to America's trash problem. Taking care of our garbage will require an integration of a range of options—recycling, source reduction, incineration, better managed landfills, and hazardous waste reduction. Together, all these paths lead toward a comprehensive waste solution, and I strongly believe it is time for the Federal Government to start moving more strongly in that direction.

Today we will learn what EPA is doing, what EPA should be doing, and what more can be done at all levels to combat America's trash problem. I thank our witnesses for coming and look forward to hearing their testimony.

Our first witness is Mr. Wynn Porter of the Environmental Protection Agency.

Mr. Porter, why don't you proceed and introduce the persons who are accompanying you.

## STATEMENT OF J. WINSTON PORTER, ASSISTANT ADMINISTRATOR FOR SOLID WASTE AND EMERGENCY RESPONSE, ENVIRONMENTAL PROTECTION AGENCY, ACCOMPANIED BY MARCIA WILLIAMS, DIRECTOR, OFFICE OF SOLID WASTE, AND FRANK BLAKE, GENERAL COUNSEL

Dr. PORTER. Mr. Chairman, I have with me on my left, Marcia Williams who is the Director of Office of Solid Waste, and on my right, Frank Blake, General Counsel of EPA.

I'm glad to be here today, Mr. Chairman. I'd like to submit my full testimony for the record and just take a few minutes and hit the high points in a summary.

Senator BAUCUS. Yes; at this point let me say that the full statement of all witnesses will be included in the record. We will attempt to keep each witness to 5 minutes. This light will warn you when your time has expired. Sometimes the time lapses over slightly, but I encourage each witness to, as much as possible, stay within the 5-minute rule.

Dr. PORTER. Thank you, Mr. Chairman.

First, I want to congratulate you on a very timely, important hearing. Subtitle D of RERA is a very important topic, which is taking more and more of our time and energy at EPA. Today, I will give you some sense of where we are and some of our thoughts. I'm sure we will hear some interesting comments from the other witnesses also.

In your letter you asked me to cover nine points in my written testimony. I'm not going to cover all the points in my summary, however, I will hit the high points.

One of the topics I want to address initially are State solid waste plans, which are currently required by RCRA. We want to reemphasize the importance of those plans. About 25 State solid waste plans have been approved by EPA, and other States are completing plans. We believe the completion of State solid waste management plans is a very important facet of the program and we want to reenergize that program. I intend to formally request all the State environmental commissioners to finish those plans or to update existing plans that need revision. If that doesn't work, Congress may want to consider some sanctions or incentives; and we have some ideas there, as I indicated in my written testimony.

With respect to the level of funding—you raised that question—and certainly there's been a sharp drop in subtitle D, or solid waste resources. Starting from about 1982, funding dropped sharply, then in 1984, funding decreased to zero with some increase again over the last few years.

Also, the Agency has been developing regulations to subtitle D of RCRA, such as special standards for mining waste that are in the special waste category. We have been conducting a number of RCRA subtitle D activities, including a lot of special studies on ash.

So we are trying to redirect some of our resources into the subtitle D and pump life back into that program.

Let me turn quickly, then, to recycling. The chairman mentioned recycling and I want to take time to address this subject because believe this is a very, very important component of the subtitle D program. We are really going to work hard on emphasizing recycling. We think we are going to need landfills, whether for ash or for municipal solid waste. To a large extent, we think we need resource recovery units, but we also think that the missing link has been recycling. We currently recycle about 8 to 10 percent of the material in this country; that is mostly newspapers, cardboard and aluminum cans, with minor amounts of other material.

As the chairman indicated and as I indicated in my testimony, many States as well as many foreign countries have very interesting and innovative programs with respect to recycling, What I'm trying to do personally with my staff is to get out front with respect to what the Federal Government ought to be doing.

As far as the Federal Government's role in recycling, let me just very quickly mention a few things. We are trying to complete the procurement guidelines, which we've been tasked by Congress to do. These guidelines relate to the Federal Government procuring a number of used materials in an effort to get materials back into the recycling stream. We also see a major role for the Federal Government in technical assistance and R&D activities.

I've been spending time recently with our head of research and others reviewing what the Agency is doing with respect to recycling and technical assistance, and I think we have many more things we could be doing there.

Finally, we think a very important part of the Federal role in recycling is source reduction. The chairman mentioned the various heavy metals—lead and cadmium—plastics, and other materials that we must take a fresh look at to see what can be accomplished with respect to source reduction. Source reduction for some of these materials is much more straightforward than for others, but we certainly need to take a look to see if source reduction is part of the answer to the problem. And I see that, Mr. Chairman, as being to a large extent, at least initially, a Federal role; because it's very difficult I think, to deal with materials like plastics on a city and county level and, perhaps, even on a State level.

We have some new landfill regulations that are coming out and we can discuss those at length subsequent to my oral testimony. I will not to through the regulations right now, but we do think they are much more protective than current landfill requirements. They will be coming out early next year and we can get into the details of the regulation later.

Let me spend just a few minutes of my remaining time on municipal waste combustion ash and tell you where we stand.

We intend to put in the Federal Register a notice in January for comment that will relate to both the technical aspects of handling fly ash and bottom ash, and a legal interpretation of what we think RCRA says about ash. And, again, I want to cover both subjects very briefly. There are about three or four cases covered in RCRA regarding whether you're in or out of the household exclusion. Let me focus immediately on the one that I think has been of most interest which is the legal interpretation regarding a facility that accepts household waste and some non-hazardous commercial industrial waste and is recovering energy.

It appears to us—and Frank Blake can address this more later, if you'd like—that, in order to encourage resource recovery and energy recovery, Congress has probably exempted this type of facility from subtitle C of RCRA. We intend, however, to put that interpretation out for comment to let others review it to see what happens. In our original interpretation of that law, we did not offer that part for notice and public comment and I think that probably was a mistake, in retrospect. So, we do need to get on the right side of this issue to determine what the legal interpretation is.

On the technical guidance, briefly, we will be proposing how to handle, in a technical sense, fly ash and bottom ash. We intend to handle fly ash in a more stringent fashion than bottom ash, probably through the use of monofills—that is for ash only, double liners, and leachate collection systems. To the combined or bottom ash, we may not require quite as stringent requirements, but still more stringent than normal for landfills in general. We intend to follow that guidance and comment period with a formal regulation on ash as a special waste, probably under subtitle D of RCRA, and get, again, notice and comment on how that should be handled; because we do think, as I'm sure you're going to hear from many witnesses today, this has been a major issue both legally and technically. We want to really deal with it also as a technical issue. We are not concerned about the metals and other materials in ash. We need to resolve the legal issue and we also need to deal with the technical problem; because, whether ash falls under RCRA subtitle C or D or something in between, there are constituents in ash that we need to be concerned about.

So, Mr. Chairman, that, in a nutshell, is what I wanted to say by way of summary. I think that in the future we're going to need a series of methods for solid waste disposal. We are going to need good landfills; we're going to need good energy recovery units; and, perhaps most important, we're going to need to increase source control and recycling. We also need to work very closely with the States and localities. We fundamentally believe at EPA that the basic day-to-day responsibility for solid waste ought to continue at the State and local level, although we certainly agree with you that the Federal Government needs to provide additional leadership.

We'd be happy to take any questions you have.

Senator BAUCUS. Thank you, Dr. Porter.

I'd like to first explore how EPA perceives solid waste disposal as a problem today. That is, the degree to which, in the view of EPA it's becoming a problem; the degree to which local communities are having a difficult time managing it; where to dispose of garbage; the degree to which some sites are developing it to potential hazardous waste sites and the leakage in the ground water; and, the degree to which, with incineration, the fly ash is a problem or that the bottom disposable ash is a problem. Just how does EPA regard solid waste disposal as a problem today? How acute of a problem is it? Just very briefly, I'd like to get a sense of how severe and how great a crisis EPA perceives solid waste to be or not to be.

Dr. **Porter**. I'd put it in two halves, Mr. Chairman. I think there is a very large capacity problem; I would almost use your term "a crisis" in the sense of what we are going to do with solid waste. We're running out of landfill space, we're having difficulty siting landfills and incinerators, etc.

Senator **Baucus**. So you think if not a crisis, a near crises with respect to space?

Dr. **Porter**. Particularly with regard to capacity. I think from an environmental perspective there are definitely problems. One hundred sixty former landfills are now Superfund sites, so we know there are potential environmental and health problems, and that we need to move on those. But I think part of the capacity problem is right in there, too, and it probably is also as much of a problem.

Senator **Baucus**. How can you, if not certain, at least be somewhat satisfied that there's also not a near-crisis with respect to hazardous waste and toxicity, whether it's leakage in landfills or incineration problems. I'm just curious as to what the basis is for your opinion that there's not a problem.

Dr. **Porter**. I'm surely not saying there's not a problem. I think, for example, as people begin to install ground water monitoring, as will be required under the new regulations, we will learn much more about those issues. I think there are many leaking landfills; I think there are definitely problems. I'm just not sure I'd use the term "crisis" until we learn a little more about it.

Senator **Baucus**. But you think it's potentially a very significant problem. I don't want to put words in your mouth, but do you think it's potentially a very significant problem?

Dr. **Porter**. Yes, sir.

Senator **Baucus**. You do think that?

Dr. **Porter**. I think it's a potentially serious problem because there have been problems in the past. Certainly with the older landfills, as I said, there are 160 of them on the Superfund list, that's out of 6,000, but there had been some problems in the past.

Senator **Baucus**. Second, I'd like to establish as best I can, what legal authority EPA has, for example, in setting standards for landfills what legal authority does EPA have for encouraging recycling. Apart from what EPA has or has not done, I'm only trying to focus in on the authority EPA has. If you'd just address what authority EPA has; if it's exercised to its maximum potential; what authority does EPA have?

Dr. **Porter**. With respect to landfill criteria, we're directed in the Hazardous and Solid Waste Amendments of 1984 to specify landfill criteria. We have the legal responsibility to do that and we're doing it. The States have the legal responsibility then to pick up those requirements in their permitting system and then EPA has enforcement authority where a State doesn't pick up the requirements. So, I think in the landfill context, there's fairly straightforward authority through the process.

Senator **Baucus**. Authority to do what?

Dr. **Porter**. Authority to develop regulations and then for the States to pick them up.

Senator **Baucus**. And there's authority to create fairly strict and tough requirements; correct?

Dr. **Porter**. Yes, sir. In fact, we're required to require ground water monitoring, corrective action, and location standards.

Senator **Baucus**. What about some other areas—say, recycling; what authority?

Dr. **Porter**. Well, I think the recycling is more problematic. I don't think there's necessarily any inhibition, but there's no authority. Mr. Blake may want to help me on this, but I'm not aware of any legal authority under RCRA to enforce recycling.

Senator **Baucus**. Do you want to consult with either of your colleagues?

Dr. **Porter**. Yes, I was going to say, we might want other statutes such as TSCA. There are other laws that may be helpful to promote recycling.

Ms. **Williams**. The Toxic Substances Control Act or TSCA is a fairly broad law that allows one to take a look at manufacture or processing, use, or disposal of products and chemical substances; and, within the construct of that law, we're looking to see whether or not there's authority under that law to compel recycling. The structure of the law potentially would lend itself to do activities that might be appropriate to keep certain kinds of problem materials out of the garbage stream, be that plastics, batteries, certain kinds of metals, and so on.

TSCA may not have been written with that purpose in mind; it is potentially an authority that could be used——

Senator **Baucus**. So some potential authority in TSCA, then. What about resource reduction?

Dr. **Porter**. I think we may also be able to look at source reduction in terms of other authorities such as TSCA. That's the same thing.

Senator **Baucus**. The same as recycling?

Dr. **Porter**. Yes, the same way.

Senator **Baucus**. My 5 minutes is up. I'll turn to Senator Graham.

Senator Graham.

## OPENING STATEMENT OF HON. BOB GRAHAM, U.S. SENATOR FROM THE STATE OF FLORIDA

Senator **Graham**. Thank you very much, Mr. Chairman. I would like to request permission to submit for the record an opening statement. In that statement, Mr. Chairman, I regret that I have to leave shortly and refer to a good friend and a very valued public servant from Florida, Mr. Harvey Ruvin, who will be testifying later this afternoon. I would like to extend a welcome to him; and, commend you for having invited people of his caliber to speak to this important subject.

Senator **Baucus**. Without objection, your statement will be made a part of the official record.

[Senator Graham's statement follows:]

### Opening Statement of Hon. Bob Graham, U.S. Senator From the State of Florida

Mr. Chairman, I appreciate the opportunity to examine an increasing concern in our country—that of the disposal of municipal solid waste. We in Florida have the additional constraint of a high water table, making landfilling even a less desirable option. With a 3-percent growth in population per year in our State, municipal waste is on the rise and disposal options are not in abundance.

In our Clean Air Amendments, this committee has strengthened requirements for municipal waste incinerators. Environmentally sound facilities are imperative in order to avoid solving one set of problems by creating another. We are also faced, especially in Florida where landfills are rarely workable, with the fact that municipal waste incineration is one of the few viable waste disposal alternatives available. While controlling, we must also work to keep incineration viable.

Recycling efforts are increasing, and must be given a major focus in waste management strategies. Waste reduction will prove one key to the growing trash problem. At some level, we may have to look at production practices, decreasing the amount of materials that become waste.

Mr. Chairman, I regret that I will be unable to stay the full length of the hearing today, as I have some time conflicts. Since I will have to leave shortly, I would like to take this opportunity to welcome Harvey Ruvin, County Commissioner of Dade County, Florida and President of the National Association of Counties. Harvey has been a Dade County Commissioner for 15 years, and is an advocate of the Federal-State-local partnership role in waste management—as I am.

Harvey brings this experience and priority to the National Association of Counties. He became President of the association in July 1987 after active involvement for over 10 years. I welcome Harvey today, as I do the other witnesses before us.

Thank you, Mr. Chairman.

Senator **GRAHAM**. An issue that I'm interested in, based on my experience in Florida, is what can the Federal Government do to accelerate the pace of technological change and enhancement, with particular attention to incineration.

We've had several experiences of either extended delay in completion because of technological problems, in many cases substantial cost overruns; and, then, difficulties in the management of the facility once completed; and, finally, some unanticipated environmental problems, particularly as it relates to air quality. What do you see as the Federal role in facilitating the enhancement of the technology that will allow us to deal effectively as a Nation with our solid waste disposal problem?

Dr. **PORTER**. Senator Graham, I think that I'd say a couple of things. One is that we're trying to put in place a regulatory framework so people know what they're shooting for. We're developing new source performance standards for air pollution with respect to those kinds of incinerators. We're working on the ash issues, as we have discussed today. So, I think that's part of the problem, getting that regulatory framework in place.

The second thing is we are looking in EPA at a series of R&D-type activities in terms of more efficient burning and things of that nature. My sense, however, is that there is a lot of interest in incineration now and resource recovery, and I'm personally beginning to see quite a bit of movement in that technology.

I've visited a number of units myself recently, and I think we're beginning to see the force of the marketplace as we run out of landfill space and this gets more interesting; the units of today certainly look a lot more sophisticated to me than the units of ten years ago and five years ago. So, I think a lot of it is the influence of the marketplace where people are certainly happy to do a much better job on air pollution control, a much better, more efficient job of incineration, and, a better job of energy recovery—many of these units are being used to recover energy. So, I think that there are a variety of methods available.

Senator **GRAHAM**. If I were the mayor of a medium-sized community and decided that we wanted to move toward incineration as opposed to a landfill method of disposal, is there a place within the Federal Government where we could get some advice and direction?

Dr. PORTER. Yes; we have technical experts. We're trying to rebuild our technical expertise I must say, though, because one of the things that's happened with this tremendous preoccupation or interest in hazardous waste is that our solid waste expertise has dropped off somewhat in the last few years. We're trying to build that back up within our regions and at headquarters, but there certainly are places in Ms. Williams' office where we have people who are knowledgeable about incineration. Also, the Agency's research and development people are able to provide technical expertise. So you could start with the Office of Solid Waste and Emergency Response and we'd go from there.

Senator GRAHAM. My assessment of the problems that the nuclear energy industries have had in this country is, in part, that we have attempted to treat each plant as a Mona Lisa—a new work of art—as distinct from the Japanese and French which have essentially replicated adopting what has been learned from previous plants in new facilities. I would like us to learn from that experience and not repeat it in this area of enhanced technology for solid waste disposal, and it seems to me that the Federal Government could play a key role in achieving it.

As an example, would you see it within your current legislative mandate to do things like certification of mechanical processes, that they would, in fact, attain the performance standard which you are establishing?

Dr. PORTER. I'm not sure I do on that, Senator; I have to think about that just a little bit. We're not quite heading in that direction. I think at a refuse plant there are a number of ways to do it: you can derive fuel from refuse; you can burn it directly; you can generate energy or not generate energy. There seem to be a number of technologies evolving and I'm not sure we necessarily want to force those technologies into one mold. I understand your concern.

Senator GRAHAM. There might be 10 different technologies, from the most primitive to the most sophisticated and multipurpose, but it would seem to me that it would be valuable, as local governments increasingly moved in this direction, if they were able to look to some source of technological leadership through a certification of equipment or other form. Although this is not a mobile source of pollution, as is an automobile or truck, we've accepted the Federal role in setting standards of performance. There are some analogies here because these pieces of equipment are going to tend to be made and then distributed to a nationwide interstate marketplace. So, if they're going to be standards set at the point of manufacture of the various components that would make up either a simple or complicated incineration process, the Federal Government is the only level of Government that has the capacity to effectively do that.

Dr. PORTER. Yes, I think, Senator Graham, that we might have a bit of a problem in legal authority in some of that. I think, from a technical standpoint, we certainly want to be a resource for technical expertise but that's a bit of a jump to go from that to actually certifying things; and, I need to think about that just a little bit. I understand your point; and, we, perhaps, could get back to you. But, I think we might have a little bit of a legal authority problem in setting ourself up as a certifier.

Senator **GRAHAM**. Mr. Chairman, let me just conclude by leaving with a request not to get tied down to the specific of certification, which is a means to an end, not the end itself. If the end result is to accelerate the pace of technological enhancement in this burgeoning area, what role could the Federal Government most effectively play having identified those roles, which ones are within your current legislative authority to do, which might require further expansion of your portfolio of powers in order to accomplish.

If you could supplement your remarks with a paper on that subject, I'd be very happy.

Dr. **PORTER**. I would be happy to, Senator.

Senator **GRAHAM**. Thank you.

[The information requested follows:]

I believe the goal of accelerating the pace of technological enhancement is best achieved by the approach EPA generally takes when possible, which is to examine available technologies and then establish an emissions or an operational performance standard. This establishes a clear benchmark for performance and yet still allows innovative manufacturers to develop better ways to achieve or better that performance standard. Incinerator air emissions lend themselves to a reasonably straight-forward performance measure; adoption of a technology—specific standards could stifle the development and adoption of improvements in these combustion technologies.

While there could be other objectives to a certification approach, such as providing certainty to the purchasers of MWC equipment, I believe that communities will be able to evaluate Municipal Waste Combustion [MWC] technologies by requesting performance data from the manufacturers of the equipment, and comparing that data against the EPA standards.

In the hazardous waste area, we allow the owner of a hazardous waste incinerator to submit test data from previous EPA permit proceedings on identically designed hazardous waste incinerators [see 40 CFR 270.19] as one way to reduce the procedural and economic costs of testing. At this time, it is too early to know if this approach would be practical for municipal waste combustors under the Clear Air Act.

I do not believe we need any new legislative authority to achieve the objective of accelerating the development, or adoption, of environmentally sound MWC technology.

Senator **BAUCUS**. Mr. Porter, we were talking earlier about what authority EPA has or does not have with respect to source reduction. I don't know if we really fully addressed it with respect to recycling. I wondered if we could clear that up, please.

Ms. **WILLIAMS**. Again, I can share with you hypothetical things that we thought about but, in terms of whether or not our structure under the Toxic Substances Control Act might provide that kind of authority, we haven't in any way done a legal analysis to see if the law would support it. We think there's potential there. For example, we're looking at options for used oil to try to encourage recycling of used oil by making sure that people had places to take used oil for recycling. Also, we were looking at whether or not we could require people that sold oil to also take oil back. In that context, we were looking at the Toxic Substance Control Act, and it looked like potentially we did have the authority for collecting used oil.

That same kind of concept could be used for batteries or other kinds of things. So, again, this is not a definitive legal response;

but, from a programmatic standpoint, we have started to discuss that.

Senator BAUCUS. But why hasn't the agency pursued that more aggressively?

Ms. WILLIAMS. Well, I think we are looking at it. The findings under the Toxic Substances Control Act require one to be able to look at both risks, costs and benefits of making those kinds of decisions, and that's the kind of information that we've been pulling together now.

Senator BAUCUS. When will EPA announce its actions under this new aggressive approach?

Dr. PORTER. Well, there are specific things we're looking at and I can give you a schedule on certain pieces of it: we're revising the municipal solid waste landfill criteria, which we expect to propose in the spring of 1988. As Marcia indicated, we're looking at using TSCA to require recycling and/or source separation of used oil and other products; and, what I can do is give you, for the record if you like, some indication of where each one of those pieces stand. They're not going to all come out at one time. We're trying to prioritize the way we approved the program.

Senator BAUCUS. Any sense of when you expect them to come out?

Dr. PORTER. I think this fiscal year we'll have some of them out.

Ms. WILLIAMS. What we're doing now is not for the regulation problem but for at least scoping out whether or not it looks like it's a set of activities that we could accomplish under the legal authority that we have.

Senator BAUCUS. I'm sorry, so by what date do you think you might be able to tell us what you're doing here?

Ms. WILLIAMS. Again, over the next six months, we will be able to make recommendations to Dr. Porter and Dr. Moore, who is responsible for the TSCA statute, as to whether or not it looks like we can use that statute and we can make the findings when we want to go forward. At that point, if we were to decide that we want to write a regulation to do it, it would probably take us another 18 months to get the regulation proposed.

Senator BAUCUS. Well, I encourage you to move very quickly, frankly, and also on some interim basis to keep us well apprised of what the agency is or is not doing, because the fact is, as you well know, we're going to be moving with an authorization bill next year, and what we include or do not include in that bill depends to a very large degree upon what the agency is doing.

Dr. PORTER. Yes, Senator Baucus, I think one thing that would be useful in that time frame is, as Marcia indicated, whether this seems to be a fruitful path to go down. We will certainly share that with you because, if it does not appear to be a fruitful path, you may want to think of others.

Senator BAUCUS. Turning to incineration ash disposal facilities, most folks realize it's neither fish nor fowl under subtitle C or D; I'd like your reaction to the provisions this committee enacted in the Clean Air Act—that is, if it's a separate category of treatment of incineration fly ash. Do you agree with that, or do you not agree, and why?

Ms. **Williams**. I think we have supplied some comments, at least at the staff level, and we'd be happy to provide them officially for the record here. Generally, I think the direction that we're going and the direction that that particular draft went have a lot of things in common. There are a few areas where we believe that the particular draft that we saw from you may go further than what might possibly be necessary and, particularly, in some of the pretreatment areas but, generally, the directions that were in there are similar to many of the ones that we will recommend technically.

Senator **Baucus**. I liked your reaction to the proposition that many make that this is becoming more of a national problem and, therefore, it requires more uniformity in standards and requirements nationwide; that is, a lot of States send their trash into other States, and also not all ground water respects State boundaries. Fly ash does not necessarily respect State boundaries or local communities, for that matter, either. What's wrong with setting some basic Federal minimums—rough and algae comes to my mind—and the mining reclamation laws as they apply, at least, to an open pit; strip mining—that was a case where the Federal Government set some basic minimums and the States could enact more stringent standards if they so chose. What about that?

Dr. **Porter**. Well, I think, Senator Baucus, that is precisely what we're doing in a number of areas. On the landfill regulations we'll be setting Federal requirements for the disposal of municipal solid waste, including both fly ash and bottom ash. People that are dealing with ash in terms of ash disposal would need to meet those requirements or those regulations as a national matter. Because, one thing about garbage we've got to keep in mind is, as you well know, it varies tremendously, not only from town to town, but from time of day to time of week.

So, what we have found with ash is that, yes, there are toxic metals in the ash, they vary tremendously, but rather than trying to categorize exactly what they are in every case, it may be better to require liners and leachate collection systems, or other sorts of technical fixes to the problem. And, the reason we are moving that way is to create national uniformity, but also to recognize that the materials vary so much in the ash. We need to know the component of the ash, but what we're generally finding is that there is a wide variety.

Senator **Baucus**. Wouldn't you find, though, that a lot of communities would like to pass the buck to, in this case, Uncle Sam and have Uncle Sam set some of these standards so they don't have to do it themselves locally?

Dr. **Porter**. Yes, we are going to do that, but I will say this—some communities want standards and some don't. I think on the landfill regulation what we've found particularly with respect to the States is they wanted at least some flexibility and that where we're heading. People will need liners and leachate collection systems; but, the bottom line is they'll need to meet a performance standard at their monitoring wells. So, I think it's kind of a mixed bag—in some cases they do and in some cases they don't.

Senator **Baucus**. Are you in the process of drafting a requirement at this point?

Dr. PORTER. For ash; yes, sir.

Senator BAUCUS. For ash?

Dr. PORTER. Yes.

Senator BAUCUS. What about for landfills?

Dr. PORTER. We're proposing some regulations for landfills. They'll be proposed early this next calendar year. These will be requirements or regulations for municipal landfills.

Senator BAUCUS. Could you just describe what the status of that is within the agency—the landfill draft plan; where is that right now?

Dr. PORTER. The landfill regulations are being reviewed within the management of EPA. They're starting within the final review process within EPA; when we finish our review process, they should be ready for public comment early next year.

Senator BAUCUS. But I'm asking where within EPA; what's the status of that plan at this point?

Ms. WILLIAMS. We went through one round of agency comments and completed that round of comments. We are taking those comments, they're being incorporated and it should go back to Dr. Porter within the next couple weeks; and, then we'll be able to start the review again——

Senator BAUCUS. So, back to Dr. Porter for the next several weeks and then where does it go?

Dr. PORTER. Well, when it finishes with the agency it goes to OMB.

Senator BAUCUS. But after you, that's the end of it?

Dr. PORTER. Oh, Lee Thomas.

Senator BAUCUS. The Administrator?

Dr. PORTER. The Administrator.

Senator BAUCUS. After you, it goes to the Administrator?

Dr. PORTER. Right.

Ms. WILLIAMS. Right. But it won't be going back for a full agency review in the sense that we will incorporate the comments from the first review. So, really, the last major step that's left is that it will have to go to the Office of Management and Budget for clearance.

Senator BAUCUS. Will there be an opportunity for this committee to know what's in the plan at various stages of review within the agency?

Ms. WILLIAMS. I think we have supplied a set already of all the written comments that have been done in the agency from other offices with regard to their comments on that particular package.

Dr. PORTER. I think it was one of the questions you asked, Mr. Chairman, in your letter. We responded to that.

Senator BAUCUS. Do you think that solid waste management plans should be mandated by Congress?

Dr. PORTER. The State solid waste management plans need to be completed and as I said in my testimony I'd like to tell the States they are required under RCRA to do them. Most States, frankly, have done the management plans. I think that if the States do not do them then Congress, yes, may need to require they be done. I think the real centerpiece of this program should be that States have good solid waste management plans, and I think those plans should deal——

Senator **Baucus**. I'm sorry, I missed that last point.

Dr. **Porter**. I said one of the real centerpieces of dealing with the solid waste problem is that States need good solid waste plans that should deal with recycling, landfills, capacity, and all the issues.

Senator **Baucus**. I think that's right, but if States don't, should Congress mandate it?

Dr. **Porter**. I think they probably should.

Senator **Baucus**. OK. Thank you very much for appearing this morning.

Dr. **Porter**. Thank you.

Senator **Baucus**. I'm going to modify the next panel. First, we're honored to have with us Senator Roth from Delaware who will introduce the gentleman from the Delaware Solid Waste Authority, Mr. Vasuki. After that introduction, I'll then call up to the witness table Mr. Frederick Hansen and Ms. Virginia Galle.

## STATEMENT OF HON. WILLIAM V. ROTH, U.S. SENATOR FROM THE STATE OF DELAWARE

Senator **Roth**. Thank you, Mr. Chairman.

I appreciate the opportunity to be here today to introduce a man who is truly an expert on solid waste recycling. It was Mr. Vasuki's foresight and efficient involvement in the operation of our solid waste authority over the past 11 years that has put Delaware in the forefront in solid waste disposal technology. Most importantly under his direction, Delaware's waste disposal activities have made resource recovery a primary objective.

I might say I'm proud to have been involved in this from the beginning and I'm proud of the bipartisan support our demonstration unit has had as it's become a national centerpiece of a valuable cooperative—Federal, State, local, and industrial waste recovery activities.

I might say, Mr. Chairman, that my good friend, N.C., stands with me in my steadfast opposition to the incineration of hazardous waste at sea. And, I feel, as he does, that we must place our primary emphasis on resource recovery and alternative technologies. I fear that if we pursue incineration as a primary disposal option, we'll reduce our impetus to recycle. In my judgment we should not allow this to happen.

Mr. Chairman, two landfills operated by N.C.'s authority were recently recognized by the Government Refuse Collection and Disposal Association in their annual competition for the best design constructed and operated landfills. I commend N.C. because he walked away with two of the top three awards. It's N.C.'s extensive environmental and engineering background that has made him the leader that he is in this area, and I believe you'll find his testimony both educational and thoughtful.

Thank you.

Senator **Baucus**. Thank you very much, Senator. I know your reactive interest here, particularly in helping to get Delaware authority up and running, and it's very much appreciated—your very active and helpful involvement.

Senator **Roth**. Thank you, Mr. Chairman.

Senator BAUCUS. Our next panelists, then we'll get to you, Mr. Vasuki, as soon as we call them up to the witness table, are: Mr. Frederick Hansen of the Department of Environmental Quality in the State of Oregon; and, Ms. Virginia Galle from Seattle, Washington; and, also, Mr. Thomas Jorling, the Commissioner of the New York Department of Environmental Conservation in Albany, NY.

Mr. Vasuki, why don't you lead off this panel.

## STATEMENT OF N.C. VASUKI, GENERAL MANAGER, DELAWARE SOLID WASTE AUTHORITY

Mr. VASUKI. Senator Baucus, thank you for inviting us to come here.

We're proud that Senator Jake Caleb Boggs was a member of this committee in the 1960's and was the sponsor of some of the most far-reaching environmental legislation.

Senator Roth has certainly been most helpful to us and supportive of what we're doing in the State.

Congress has acted promptly and responsibly in trying to forestall a crisis in solid waste disposal through the enactment of many laws, including Public Laws 89-272 and 91-152, the RCRA and the SARA and other laws. Some States are taking these laws seriously and have implemented programs to prevent a crisis, and I'm proud that Delaware is one of those States that have shown extraordinary leadership in this area.

Right from the beginning, we've approached the solid waste disposal problem with four items.

One is recycling. We have opted for a central processing system where the garbage is brought to one point and materials are separated. A portion of the waste is then incinerated and another portion is composted and used, and whatever is remaining is sent to the landfills. We believe that in any long-range program for solid waste disposal, you need all four of these systems.

In view of the time we have, I'm going to summarize what we have done.

One of our problems we see is the deficiency in the implementation of the laws. So, unless these laws are implemented and enforced, we are not going to see much progress. And all you have to do is look at the committee report on Public Law 91-252 and you'll see that the same words you repeat today were repeated then.

EPA has to speed up its process. Unless EPA puts out the regulations promptly, we at the State level or the local level won't know what the rules of the game are; and, until those rules of the game are firmly established, it's difficult to invest millions of dollars in systems.

Frequent changes in laws, including tax laws, despite the good intent, create a tremendous uncertainty in the marketplace and extend the time required to complete the necessary projects. This is a factor which I hope you'll keep in mind.

The population also needs to be apprised of the true cost of solid waste disposal. Substandard dumps are cheap to operate; we pay for the clean up later on. Too often there are too many hidden subsidies which create the impression that trash disposal is free or it shouldn't cost much. A user-fee system generally conveys the true cost of service, and the users start really appreciating the service because they're paying for it directly.

There is need for long-term planning, including finding places for landfills and resource recovery units. These are hard decisions, not easy decisions; you need a really thick skin to go through one of these things. But, it can be done, as so many States have demonstrated.

Finally, Mr. Chairman, I'm going to respectfully recommend some steps.

One, rearrange the emphasis on the use of appropriated monies for funding more support for the States' regulatory programs under subtitle D. There's an enormous amount of money being channeled to subtitle C programs and, in fact, more than they can spend sometimes. So that money is there; no new funds are necessary; and, it can be redirected.

Mr. Chairman, we respectfully suggest that you review and renew the emphasis on the National Materials Policy. The report of the National Materials Policy Commission, if a copy is still available, should be updated.

We suggest that Congress direct their Executive agencies, the U.S. Government Printing Office and other Federal agencies to specify recycled fiber content of paper purchased for Government use. The Northeastern States are joining together to develop common standards for paper procurement. Such action will stimulate paper companies to increase recycled fiber content in the papers. Without such direction, there is really not much incentive.

We suggest that research for revamping our steel and metal industries to make use of the recyclable scrap be emphasized.

Similarly, we suggest you support research and other incentives for reuse of plastics recovered from the municipal solid waste stream.

We strongly urge you to examine the sale of source separated materials to determine if we, as a nation, are perhaps subsidizing the import of paper and metal scrap by the Pacific rim nations.

We also suggest that you clearly define the status of ash from municipal waste incinerators under RCRA and support the controlled use of ash for construction uses, such as structural fill, road subbase, and dike construction in landfills as fire breaks and cell dividers.

And, lastly, we suggest that you seriously consider a national deposit system for all types of batteries sold to improve the collection for reuse and proper disposal of these batteries. In my view, the batteries contribute a significant amount of mercury and other metals in the municipal ash stream, and if we can remove them and keep them from going into the combustion process, we can make the ash much better to handle.

Thank you.

Senator BAUCUS. Thank you, Mr. Vasuki.

Mr. Hansen.

## STATEMENT OF FREDERICK HANSEN, DIRECTOR, OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY, ACCOMPANIED BY MICHAEL DOWNS, ADMINISTRATOR, HAZARDOUS WASTE DIVISION

Mr. **Hansen**. Thank you.

For the record, I'm Fred Hansen, Director of the Oregon Department of Environmental Quality; and, with me is Mike Downs, our Administrator in the Hazardous Waste Division. He'll be happy to answer any technical questions when we get to that stage.

What I'd like to be able to do is first outline that Oregon does face many of the same problems that other parts of the United States do. That is that our landfill space is dwindling, we have not sited a major landfill in the State since 1981, and our major city, Portland, is facing a closure of its current landfill in 1991. So, clearly, problems are on the horizon.

Second, fees are dramatically increasing for disposal of solid waste. We'll be looking at nearly doubling our tipping fees over the next several years.

Third, important ground water resources are either not being fully protected or are potentially facing contamination today.

And, last, although the high-technology alternatives of incineration are there, problems of their own exist with both air pollution and with ash contamination of ground water.

What I'd like to do is outline briefly what Oregon is doing, and where I think additional steps need to be taken.

We have statutorily established in Oregon the hierarchy of handling solid waste: it is first to be able to reduce solid waste; second is to reuse; third is to recycle; fourth is to recover energy from whatever is left; and, then, fifth and only fifth to be able to landfill.

First, in the area of reduction: it is very difficult for one single State to be able to do much to be able to reduce the amount of waste being produced. That is something that I think the Federal Government, and the U.S. Congress in particular, can address—wasteful packaging—Mr. Chairman, as you indicated in your opening statement.

The second area is reuse. Again, something that is very difficult for any one State to be able to do, but something that I think can be addressed at the U.S. Congress level. Let me make one note however: we are the first State with a bottle bill with deposit legislation. In 1971, when that law was enacted and we began utilizing the deposit process, about 20 percent of the materials—the containers—in fact, had to be recycled, that is, broken down and reconstituted. Nearly 80 percent of those containers were able to be reused. Today, that percentage is almost reversed. There is very little reuse of containers through our bottle bill; most of that material is recycled. Plastic cannot be reused; it is, in fact, broken down and, in fact, recycled. Again, there are things that can be done in the reuse area to be able to mandate more reuse rather than just materials that can be recycled.

The third area is recycling. The State of Oregon recycles over 22 percent of the solid waste stream. As I indicated already, we have a bottle bill, we recover over 90 percent of the containers covered under that legislation.

Next, we have a new law entitled the Opportunity to Recycle Act. What that basically provides is that all Oregonians will have an opportunity to be able to recycle materials that source separated. For communities of under 4,000, that means that at the local landfill or the transfer station there must be containers available for deposit of those source separated recyclables. In communities of over 4,000, which is where most of our population is, the requirement is that there must be at least monthly curb-side collection of all recyclable materials.

Next, in the recycling area, we also have new legislation of this last legislative session that we're just beginning to implement dealing with tires. As of January 1, 1988, we will require a $1 deposit on all tires sold within the State. The $1 is to be used by the Department of Environmental Quality for two purposes: one, to be able to clean up the existing waste tire disposal problems; and, secondly, to be able to be used to encourage additional recycling of tires.

Last, in the recycling area, yard debris. Approximately 10 percent of our waste stream is yard debris and, although we have some private recyclers of yard debris principally making compost for nurseries, we still need to do much more there to be able to get as much out of the waste stream as we can. In this area, although I believe States can take many steps, I also think that the Federal Government should also take additional steps. Those additional steps can be addressing such things as making sure that we do not have any more than necessary unrecyclable goods within the waste stream.

Second, plastics, a particularly troublesome area in where those plastics can be recycled, although certainly not all can. One of the real roadblocks is the ability to be able to separate plastics in an economical fashion for recycling; some kind of coding system, whether it be color-coding or others, could assist in this area, although other ideas are also on the horizon for handling plastic recycling.

And then, lastly, as has been stressed already, is procurement. The procurement policies of the Federal Government, as well as State and local governments, can assist by ensuring that the maximum amount of purchases made by local governments that can contain recycled goods should be done. Many more ideas are on the horizon.

Let me close with one last comment in the area of municipal incinerator ash, an area of real concern.

We have a municipal incinerator in Oregon; we think that it has some of the highest air control protection on it. We have, in fact, wrestled hard with what to do with the ash. In our own analysis and in private independent laboratories, the answer is inconclusive on whether or not the ash fails the EP tox test for whether it is to be hazardous. And, in that inconclusive setting, we have taken management steps to ensure that the ash is handled properly, although not regulated as a Subtitle C waste. We have specifically required that that ash be handled in a monofill that has liners, that has leachate collection and treatment systems, and that has ground water monitoring.

The current system of not being able to address exactly how that ash is to be handled needs to be corrected. It is not merely a question of whether it is in or out of Subtitle C but, if it is out of Subtitle C as has been indicated by EPA, then new management techniques—such as I've outlined that we're doing in Oregon—must be there to be able to protect the environment. I applaud EPA's steps to be able to give that kind of guidance; I think that's very necessary.

With that, let me close and say that we'd be very happy to answer any questions.

Senator BAUCUS. Thank you very much, Mr. Hansen.

Next, I'll turn to Mr. Jorling of New York.

## STATEMENT OF THOMAS JORLING, COMMISSIONER, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Mr. JORLING. Thank you, Mr. Chairman.

I've just returned from the offices of the House Appropriations Committee where I was trying to convince the committee to work hard on the State Revolving Fund legislation. It is a pleasure to appear before you now.

Senator BAUCUS. Were you successful?

Mr. JORLING. There are many steps still to go before we'll know if success has been reached.

Mr. Chairman, I come before you now as the Commissioner of Environmental Conservation of New York State. New York State, not enviously, was the site of perhaps the greatest educational exercise in the history of mankind on this issue: the famous garbage barge. When I was confirmed as Commissioner of Environmental Conservation in June, the garbage barge was sitting in Graves End Bay where it had been moored after its much-renowned voyage around the Caribbean. It was my first problem in solid waste management in the State of New York. The barge served the purpose of highlighting, I think to all Americans as well as the international community, that the solid waste problem is real. So, I do appreciate the opportunity to appear before you this afternoon to discuss the current and future Federal and State roles in implementing a comprehensive, overall solid waste strategy.

New York State and the Nation face solid waste disposal capacity crises. Currently, more waste is being produced than can be properly managed. The crisis will soon intensify unless actions are taken to reduce the amount of waste being generated, to recycle the maximum amount of resource value in the waste stream, and to safely manage and dispose of the remaining residuals. All levels of government—Federal, State and municipal—must take active roles in solving this problem. Those roles should be different, but the performance of all three will be necessary if the problem is to be attacked successfully.

Municipal waste disposal practices must change. Cities, towns, and villages will have to lessen their dependence on landfills for solid waste disposal and rethink how to safely handle and dispose of their waste.

New York State has been aware of this growing capacity crisis and the need to shift to other alternatives for some time. The underlying problem reflects our society's deeply embedded cultural habits—that is, our throw-away habits. The traditional means to handle our throw-aways, strictly uncontained landfill disposal oriented, are no longer viable. We must shift our emphasis to reduce society's wastefulness, to recover as much of our solid waste as possible, and reclaim materials and energy resources. We must persuade people to abandon the throw-away attitude, to reclaim and reuse all that we are able. We must alter the design of consumer products to facilitate future recycling and to eliminate those features that constitute real waste.

New York's beverage container deposit law, modelled very much after Oregon's which Fred has described, requiring reintroducing a portion of the waste stream material back into the market to be reused, is a successful example of this approach.

In my prepared testimony which will be submitted for the record, Mr. Chairman, I have other examples of activities in which New York State as is taking.

Most recently, the Department of Environmental Conservation issued in New York a State solid waste management plan. The plan covers a ten year planning period from 1987 to 1997. The plan is updated annually to incorporate changing solid waste management issues and actions. The plan set some dramatic new directions for solid waste management. Principally, it shifts away from landfilling in the next decade in favor of waste reduction, recycling, and energy recovery. It sets a goal of decreasing the municipal waste stream by 50 percent in that time period through waste reduction and recycling and reuse. The plan proposes more active roles for both State and local governments and emphasizes a waste reduction approach that would require legislative actions and citizen involvement.

New York State supports the draft technical requirements proposed through subtitle D criteria. We support the goals to encourage environmentally-sound waste management practices to maximize the reuse of recoverable resources and to foster resource recovery. We strongly support the concept of applying the criteria to all municipal solid waste disposal facilities. We are also comprehensively revising landfill regulations to provide state-of-the-art requirements for location, design, and operation of solid waste management facilities.

There are at least three areas of the solid waste problem that we believe are best handled by the Federal Government, they are: First, helping control small-quantity, hazardous substances that enter the municipal waste stream, principally through household and small retail businesses. Batteries, for instance, would be an example. Second, working with business and industry to change both the composition and makeup and the quantity of materials that eventually enter the municipal waste stream. And, third, helping improve market demand for materials separated or extracted from the municipal waste stream.

I would point out, for instance, Mr. Chairman, that over 40 percent of the cargo leaving the Port of New York is waste material going either to Latin America or to the Orient. It is material that they are recycling. Forty percent of that material leaving the Port of New York is waste material.

Senator **Baucus**. So 40 percent of——

Mr. **Jorling**. Forty percent of the cargo leaving the Port of New York——

Senator **Baucus**. That's on a bulk basis?

Mr. **Jorling**. Yes.

Senator **Baucus**. Not the weight, but it's a bulk figure?

Mr. **Jorling**. It's a bulk, yes.

Since my time is running short let me skip ahead of my prepared statement and conclude.

If separation and recycling are to become established as real alternatives in today's throw-away system of solid waste management, municipalities and States must have some confidence that the separated materials they will collect in inventory will, in fact, move into industrial materials markets. There is no assurance or evidence now that if the States and localities nationwide, or even those in New York State, shift entirely to recycling practices, that the millions of tons of separated newspapers, glass, office paper, metals and plastics that will accumulate in a few weeks will find market outlets. If they don't find outlets faith in the entire system will be undermined and the practical realities will force us to revert to less desirable practices.

Federal leadership in this area—again, because we are dealing with business operating in an interstate economy—will be essential to help reshape business attitudes toward use of secondary materials in the manufacturing process. This requires, first, a thorough reexamination of Federal policies like depletion allowances and other elements of tax and trade policy that may favor the use of virgin rather than secondary materials by industry. Second, it requires careful creation of positive policies that provide incentives for the use of secondary materials in our manufacturing system. Here again, close and positive cooperation with business and consistency rather than patch-work national policy will produce optimum results. A strong Federal initiative in this area offers the greatest promise for that kind of result. States and municipalities have very significant roles to play in attacking the solid waste problem, but effective contributions to critical elements of a real solution can only come from the Federal Government. I've outlined these in which I believe the Federal role is essential and most important.

Thank you, Mr. Chairman.

Senator **Baucus**. Thank you very much, Mr. Jorling.

Our final witness is Ms. Galle; is that correct?

Ms. **Galle**. Yes, that's correct.

## STATEMENT OF VIRGINIA GALLE, MEMBER, SEATTLE CITY COUNCIL, CHAIRPERSON, ENVIRONMENTAL MANAGEMENT COMMITTEE

Ms. **Galle**. I am Virginia Galle; I'm a member of the Seattle City Council, and I chair our Environmental Management Committee. Let me say at this anchor position that I agree with just about everything the panel members have said and probably all of the good things mentioned that Seattle is doing and all the problems we've also experienced.

I have submitted written testimony and I want you to know it's excellent; I know you'll read it, but I'm just going to tell you some highlights because there are a few important things I want to be sure to emphasize.

Seattle has experienced some severe problems with two typical, everyday, ordinary landfills. Almost exactly two years ago Thanksgiving we evacuated several families from their homes because of dangerous levels of methane in our Midway Landfill. Midway is now on the Superfund list; we have another landfill that may well be on the Super Fund list; we hope not, but who knows.

We have seen our costs escalate; we anticipated just a short while ago that $45 million would be the maximum to cover the closure of these two landfills. We are now facing the fact that that has escalated to $75 million and we're not exactly sure where it's going. We have some of the highest garbage rates in the country. In Seattle, it's $13.55 for the first can and $5 for successive cans, and we face another rate increase later this year.

We are doing everything we can to improve the situation in the short- and long-term. And, there is a bright side to this. Because, given these high rates, people more and more are realizing that it pays to recycle. If you can recycle a can of garbage, you're saving yourself $5 if it's a second can, you're saving yourself $13.55, if it's the first. We are currently recycling 22 percent of our garbage now. This has all been done voluntarily and with private companies, primarily small companies' buy-back and such. We have set a 40 percent recycling goal for the next ten years and we have set a goal of 50 percent by 2010. Included in that is a goal of 75 percent for yard waste. Things grow very well in Seattle and keeping up with them proves to be the real problem. A test that we currently had on yard waste reuse was very successful. We found people were willing to separate and take it to the transfer station and we found that there are companies willing to convert it to topsoil mixture.

Just before I came yesterday, we kicked off our curb-site recycling program. We're asking people to sign up and, by the first of February, we will have curb-site recycling. It is voluntary but we expect, given our rates, people will participate. We are testing two different types of recycling in the north and south ends of the city; we're going to know whether weekly or monthly collection is best and whether certain containers work better than others. But, this is part of our overall solid waste program and is included in general rates to the public; it is prepaid in their garbage bills.

Now, how can the Federal Government help? There are some very specific things. We would like to see EPA increase its interest in municipal solid waste. It's included in RCRA, but hazardous waste and toxic waste are more glamorous; but, let me say that with municipal waste there is more of it, part of it may well be hazardous and toxic, and it is a problem that really is of concern to everyone.

Cities and counties and local jurisdictions need technical support. Cities and counties, local jurisdictions, and private companies operate landfills; we operate solid waste systems; but, we do not have the time or money to pour into R&D. And this is becoming a highly technical field. This is not a seat-of-the-pants operation anymore; this is extremely technical and we want it to be and we want to do it right.

I want to echo the call for procurement guidelines for recycled products. Seattle prints letterhead on recycled paper and we use recycled xerographic paper, but there need to be procurement standards so that all cities and towns and States and even the Federal Government can help create a demand. We all know with recycling that there has to be a market and it has to be reused; recycling by itself, if we're not careful, means we're simply in the storage business. So, we do need to create the demand; we need to stimulate markets, and I think it's reasonable for EPA to take steps that would help strengthen those markets.

Now, perhaps the most important point I want to make today is this whole question of reducing waste and what we can specifically do. Cities can establish policies, we can establish programs, but cities have no control over the growing tide of packaging and much of it is non-recyclable. I would say that stopping the source of pollution is always better than treating it, which is what we're doing right now. Congress needs to charge the Environmental Protection Agency with strict controls over how American products are packaged. Now, more and more of them are coming in not only plastics, but combinations of plastic, combination plastic and paper, other non-compatible plastics, and we're getting more and more plastic and more and more packaging. Obviously, if we can affect what is at the front end of this waste stream, we will solve a lot of problems at the end of the stream. Right now it's a deluge of plastic, and it's there, and we have to deal with it and it's difficult to deal with.

For example, instead of the good old standard glass milk bottles, we now have a packaging revolution that's given us a wide range of potentially toxic, non-recyclable containers; and, we believe EPA needs the power to ban certain types of containers. In the State of Washington, as a first step, the City Council has resolved to go after State legislation and we will be taking that to our legislature in January; but, it is clear to us that try as we will, product packaging is really National in scope and must ultimately be regulated by Congress. And, if there's one thing I want you to remember, it's the question of packaging.

By the way, let me say that I appreciate being here today. If you have any questions, there's much I can tell you about Seattle's garbage. And, let me say in closing that I like your approach to this whole subject.

Thank you.

Senator BAUCUS. Thank you all very much.

You're all basically the success stories in America in this area. As I see it, you are all working diligently in your communities and your States to address the problem in a very, I think, creative, progressive, energetic way. I think that there are some other communities that perhaps aren't as energetic and even as creative and dedicated as you are. You indicate there are certain problems that you're up against; namely, with the source reduction and recycling and packaging and procurement policies and so forth.

Let me ask a general question of you, and whoever wants to answer, fine. That is, how much of the areas you need to move into can be accomplished with present EPA authority, that is, under current law; and, the other side of that same coin is, where would you advise the Congress to change the law so that we accomplish some of the objectives you see most important, whether it's packaging or whether it's reuse, or whatever it might be?

Ms. GALLE. Let me say that a lot can be done with what we have, but cities particularly need the backup of EPA. We really need the experts and the technical support, and that needs to be emphasized. And, I think things like packaging are absolutely essential.

Senator BAUCUS. Could you expand on that a little bit?

Ms. GALLE. For example, it is very possible that had the City of Seattle been alerted to the problems of landfills, we might not have gotten into the spot we are. Most cities operating landfills in the 1950's and 1960's and early 1970's did not know what the consequences would be. And that kind of technical and scientific information is useful. And, when it comes to closing landfills when we are moving toward incineration, we need to have good solid, reliable scientific and technical information.

Senator BAUCUS. One of you seemed to indicate that there should be more emphasis under subtitle D as compared to C because C is glamorous and D is not, and so forth; would that be taking too many resources away from the——

Mr. VASUKI. Senator, I believe it has. EPA more or less dropped the ball on Subtitle D many years ago. If they had adopted the regulations promptly in 1980 or 1981, many of the problems we face today would have been solved. EPA is extremely slow in adopting regulations. There may be reasons why they cannot do it, but from a local viewpoint where we have to invest literally millions of dollars—as Gary said, $75 million for closing a landfill—to make those decisions, you need to know what the future holds; and, EPA has not been able to do that.

Senator BAUCUS. Yes, I tried to break that question down into two parts, actually. One is the technical assistance and the other is the financial assistance. We have a Federal budget deficit problem, as you well know, and it's more difficult for us to find a significant amount of new dollars, whereas it's easier for us to, frankly, light a fire under EPA and help EPA provide the technical assistance.

I'm wondering the degree to which some of these problems can be solved with speedier action and technical assistance, etc., as opposed to the financial.

Mr. VASUKI. Senator, we received one of the largest grants in resource recovery from EPA. If I had to do it again, I would not go for EPA grants. It increases the costs, it slows you down, there are many, many strings attached to it. So, if I were to do something today, I would rather go to our own citizens and say: look, this needs to be done, it's going to come out of your pocket directly, and let's do it.

Senator BAUCUS. Do the others of you agree with that or not?

Mr. HANSEN. Mr. Chairman, maybe I can make clear on a couple points.

Both Tom and I are administrators over agencies that have the hazardous waste responsibilities also, and I don't think we look in the bank account in that area and say that it's too flush and that somehow there can be a transfer of funds. Clearly, as a nation, we must address the problems in the hazardous waste area.

But, secondly, I think your first question was what authorities are there at EPA or are there new authorities.

Senator **Baucus**. Right.

Mr. **Hansen**. I don't claim to be any kind of an expert in EPA law, I've not studied those issues but, at least what had been outlined by Marcia Williams earlier in terms of being able to address some of the problems under TSCA, seems to me to be addressing certain hazardous or toxic materials under TSCA, and that that is one way to be able to address it. However, from our State, we would not be looking toward making certain on recycling, for example, if we had to only take that action if they were toxic. We are taking things out of the solid waste stream that have not had enough research to determine if they're toxic or may not, in fact, even be toxic, but are still contributing to that solid waste stream.

Authorities of that sort, whether or not they exist at EPA, are the kind of authorities I think would be necessary if you are going to really start taking on major sections of that waste stream.

Senator **Baucus**. So, you're saying the degree to which TSCA addresses only the hazardous waste as opposed to non-hazardous municipal waste, that perhaps the law should be changed or there should be some statutory authority guides at EPA to address them, but to speed up reuse, recycling? I don't quite understand the point; is that what you're saying?

Mr. **Hansen**. Yes, Mr. Chairman, I believe that they—if I understand it—under the TSCA, that certain findings must be made relative to the toxicity of those items that are, in fact, going to be regulated there. What I'm saying is that I think there could be steps taken quicker and maybe only taken under other kinds of authority; I just don't know whether those other authorities exist at EPA or not. If they do not, I think they should.

Senator **Baucus**. But, again, just generally, what new authorities need Congress enact? Do we just light a fire under EPA?

Mr. **Jorling**. Mr. Chairman, let me try to respond.

First of all I don't think the States, recognizing the budget crisis that faces the Federal Government, are going to come before you and say we need a large new grant program. That is certainly not our position even though the magnitude of needs in our State are very great.

I would say we need perhaps three things from EPA, and I think the question is, "Do they have the current authority?" Or is there authority now but is that authority so discretionary that they're not acting fast enough, and should they be given mandates and time tables to complete those actions?

Unfortunately the State of New York is going to have to act without EPA guidance on a comprehensive set of solid waste management regulations governing the state-of-the-art landfills, governing waste energy plants and their emissions, governing hospital waste incinerators and their emissions and governing the disposal of ash very consistently with what Fred has described is the case in Oregon. We're going to have to do that and we're going to have to do it before EPA does it. And, we wish, in a sense, that we had the

R&D apparatus of EPA in order to support that activity, but we have to do it, because improper solid waste activities, are occurring now and we have to act.

It would have been helpful if EPA would have acted with the minimum standards for those regulations prior to now, but we will, in fact be ahead of them; and we just hope in the end that ours are compatible and consistent with what EPA will finally establish.

So, I think more timely base minimum regulation has to come from EPA over these things and they have the authority now.

We believe there is also existing authority to regulate in the area of product usage in interstate commerce.

For instance, in the TSCA example, we think EPA has authority under section 6 to regulate elimination of lead from newsprint ink, and that such regulation is feasible since there are substitutes for lead in newsprint. Lead in newsprint ink is the reason why, according to our analysis, so much of the ash from waste-to-energy plants has lead contamination that is extracted in the EP toxicity tests contains lead contamination at greater than the standards under subtitle C.

EPA could regulate such products. There are products in interstate commerce that the components of which or the nature of the material itself causes a very difficult problem in solid waste management. Either they prevent useful recycling, or they prevent adequate burning, or they prevent composting. Those are the targets to which I would suggest that the Federal Government direct its attention. I believe that you can weave authority out of TSCA and RCRA and some of the other statutes into an interpretation that authorizes such regulation.

What I'm concerned about is that too many lawyers disagree with that and, therefore, I think the Congress should make it clear——

Senator BAUCUS. Because they disagree that the agency is tentative—there is a chill on the use of that authority.

Mr. JORLING. That's correct.

Senator BAUCUS. It should, therefore, be more clarified so that the agency then proceeds.

Mr. JORLING. That's correct.

Senator BAUCUS. Could you all, very briefly, outline the true landfill costs; some of you alluded to the generally known costs of landfill disposal; just a statement or two?

Ms. GALLE. Landfill is cheap, to begin with, because it only involves leasing or buying land, and management of landfill is easy. It's the closing, and it's the infrastructure that goes with the closing. You have to have a leachate collection system because you have to control that; it has to be covered and contoured; you have to control methane; and, you really have to leave it so that it's in reasonably good shape.

Our new minimal functional standards in the State of Washington call for liners and things so that won't happen, but all of the landfills we now have are simply raw in the ground; and, so, it is the closing that is really the problem, and it's closing where we need—really need—technical expertise to be sure that after we've spent all this money that we really have a secure former landfill.

Senator BAUCUS. We're spending a lot of time here. Let me ask the question a little differently.

In economists' terms, does the cost-benefit ratio of the various different ways of handling the problem—that is, materials reduction, reuse, recycling, incineration, landfill—just going through those, where are we going to get the biggest bang for our buck in the next several decades?

Ms. GALLE. None of them is cheap; this garbage is no longer cheap.

Senator BAUCUS. They are all expensive; but I'm curious as to which one is potentially, for what you get out of it, less expensive.

Mr. VASUKI. In today's cost, a double-lined landfill for municipal waste with a leachate collection system, gas collection, closure and post-closure monitoring, you're looking at $35 a ton.

Senator BAUCUS. At $35 a ton?

Mr. VASUKI. Yes.

Ms. GALLE. It's $60 in our area.

Senator BAUCUS. I'm sorry, $16?

Ms. GALLE. We're approaching $60.

Mr. VASUKI. That, to some extent, will depend on the land cost. A recycling plant, which recovers metals, glass, and to some extent plastics, and then the remaining materials for landfill, you're probably looking in the range of $45 a ton. If you're looking at a new incineration plant under today's tax laws, it appears that it would be in the range of $55 to $60 per ton; but that number depends on the sale of energy. If the energy is sold at 3 or 4 cents a kilowatt hour, that's the number you get. If the energy is sold at eight or nine cents, as some States are mandating, then the number goes down.

I'd be glad to send you an actual construction operation experience for all these systems.

Senator BAUCUS. If you would please, I'd appreciate that.

Ms. GALLE. Could I add on to that?

If we're considering—and we surely should when it comes to cost benefit if we're really talking about environmental costs—there's no question that recycling and reuse is at the top of the list, because the benefits far outweigh the dollars invested because they are really preventing problems and they're making things better. So that regardless of the dollars spent, the recycling and the reuse has to be at the top.

Senator BAUCUS. Are you aware of any studies that show or document that point?

Ms. GALLE. No, but I think there's kind of a gut feeling that it just would.

Senator BAUCUS. Intuitively it makes a lot of sense. But I'm just curious of the degree to which there's some fairly good, solid studies that tend to document that.

Ms. GALLE. But when you think of what's happening environmentally and then you see the environmental costs of the other systems, they balance that risk.

I'll see if I can find some, because I suspect there are.

Mr. HANSEN. Mr. Chairman, on that, Oregon's Opportunity to Recycle Act basically defines recyclable material as that material which may be disposed of at a cost less than or equal to the cost of landfilling, and in our principal metropolitan city, we've identified seven items which meet that test—that is that it is, in fact, more cost effective; the benefit is there to be able to recycle rather than, in fact, landfill. On merely the straight cost of the tip fee, recognizing, I think, as we all do, that tip fees do not necessarily reflect the true cost of that landfill. That is, as that cost goes up, it even becomes more attractive economically.

Senator BAUCUS. What's your reaction to Congress enacting some kind of a fee on a sliding scale on garbage that's disposed and trying to discourage the landfill disposal and funds going to a trust fund of some kind to help research for waste reductions. I don't know, I'm just trying to figure out some kinds of incentives to move toward the top end. Do you have any ideas like that that have any promise, do any of you think, or not?

Mr. JORLING. Yes, I can relate New York's experience. The greatest incentive to moving our solid waste management practices to more environmentally sound strategies has been the closure of noncomplying landfills. The fact that people are deprived of that easy, cheap solution is the thing that moves them more quickly than any other mechanism that I, certainly, have observed.

We will supply analyses we have of the closure costs and new landfill costs for the record, but just to give some scale in this context with numbers—we have communities on Long Island, communities in excess of 300,000 people, who are paying $180 a ton now to dispose of their waste. When you reach those kinds of costs, the people become very interested in finding alternatives. It's like a mini-OPEC situation. Long Island communities are shipping their wastes to Pennsylvania, and are paying $180 a ton to do it. That means there are assets from New York flowing into Pennsylvania—just like the assets from the United States are flowing to oil exporting countries. That doesn't make any sense. So, there is a climate, I think, for substantial and rapid change in our habits in the near term.

Senator BAUCUS. Isn't there a California statute that's a certain amount per container on California beverage industries and it goes up——

Ms. GALLE. Oh, yes; that's brand new and it's a penny per container. Its one drawback is it's highly complicated, but we're all watching it to see how it works.

Senator BAUCUS. When did that go into effect?

Mr. VASUKI. This past year.

Ms. GALLE. In the spring, just this last year.

Senator BAUCUS. On the face of it, does that have potential or not?

Mr. HANSEN. Mr. Chairman, maybe I can answer that because it's pretty well patterned after what is the Oregon bottle law in place since 1971. I think it has tremendous value, however, I think what we have to be able to recognize is that in some ways it is an anti-litter law rather than a solid waste law. That is, it takes it out of the solid waste stream but it still has to be dealt with; and, as long as those materials are recyclable or reusable, they can, in fact, be dealt with; but, if they are, in fact, more and more plastic containers, then we are finding more and more difficulties being able to utilize that material. But, in terms of being able to take it out of the waste stream very, very effective, we are finding, generally speaking, 90 plus percent recovery on all items covered by deposit; however, our deposit is a nickel per container rather than a penny as in California.

Mr. **Vasuki**. Mr. Chairman, let me relay to you Delaware's experience with a bottle bill. We have a very unusual bottle bill. It's a bottle bill which has deposits on one-litre plastic bottles and steel cans and glass bottles. There is no deposit on aluminum cans. The net result was the beverage industry shifted to aluminum cans. Aluminum has high market value; for can stock you can get as much as $500 to $600 per ton. So, on a voluntary basis, over 60 percent of aluminum cans in Delaware are recycled by people without any rules or regulations, the economic incentive is there. The amount of glass in the waste stream has been reduced by half and the roadside glass problem has also been materially reduced. In one county where we have a central processing plant, we recover another 20 to 25 percent of aluminum remaining in the waste stream, so in that county, which is the most populous county in the State, we have achieved about 83 percent aluminum can recovery. There are no deposits, it's strictly a market-oriented system; and that has worked.

Senator **Baucus**. Thank you.

Before I leave, you heard Mr. Porter from EPA testify; is there anything you'd like to say in light of his testimony—that is, something he said or did not say—that you'd like to now say?

Ms. **Galle**. He did mention packaging; it won't cost a dime but it takes a lot of political courage.

Senator **Baucus**. Can you give us some guidance; how do we put our big toe in that water; how do we approach that?

Ms. **Galle**. It would take longer than I have, but I'd be happy to write you. We've got lots of ideas and we would be right behind you.

Senator **Baucus**. Thank you very much. I look forward to you being right behind us.

Thank you all very much. I appreciate your time.

Our next panel is Mr. Harvey Ruvin, Commissioner of Dade County FL; Mr. Peter Vardy, Waste Management, Inc., here in Washington, DC; Ms. Marian Chertow from the Connecticut Resource Recovery Authority; and, Ms. Jackie Warren from the Natural Resources Defense Council in New York.

Thank you all very much, and we'll start with you, Mr. Ruvin. After that great introduction by Senator Graham, you may proceed.

## STATEMENT OF HARVEY RUVIN, COMMISSIONER, DADE COUNTY BOARD OF COMMISSIONERS, PRESIDENT, NATIONAL ASSOCIATION OF COUNTIES

Mr. **Ruvin**. Senator, I understand that Senator Graham had some comments about me, and I understand they were mostly rather flowering and praising. Please take them with a grain of salt. He is still greatly indebted to me; I was co-chairman of his campaign in 1959 for the presidency of the student body at the University of Florida. He takes every opportunity to pay me back for that. I'm sorry he couldn't be here now, but it is a pleasure to be here with you, sir.

I'd like to first of all state that I'd like to endorse and ratify the full text of your comments which we published in the National Association of Counties' County News in November. I think it shows great leadership and enlightenment on your part to be out in front of these issues.

Senator BAUCUS. Thank you.

Mr. RUVIN. So we thank you and the other Members of the committee——

Senator BAUCUS. And, if I run for student body president, you can be my campaign manager, too.

Mr. RUVIN. OK.

Thank you for this opportunity to address the subcommittee on this growing solid waste management problem.

My name is Harvey Ruvin. I am privileged to serve as President of the National Association of Counties and as an elected County Commissioner of Dade County, Florida, a county of some two million people with one of the major solid waste problems in America.

First of all, on behalf of America's 3,106 counties, we do express our appreciation for your focusing attention on this problem which is approaching crisis proportions in almost every section of this country.

In Dade County, we also operate—and we're very proud to announce this—the world's largest passenger cruise lines, and most of them are cruises to the Caribbean; so, we looked upon the other cruise to the Caribbean with a great deal of interest with a mixture of fascination and horror I'm referring to the odyssey of the gypsy garbage barge which went on that extended Caribbean cruise.

As a Nation, we obviously continue to live up to our dubious reputation as the world's premier throw-away society, disposing of about 1 ton of garbage annually for every man, woman and child in the United States. No one knows the devastating consequence of these habits more than we do at the local county level; after all, it is the local official in towns, cities and counties who is charged with responsibility for disposing of that waste in a climate of community opposition, a climate of State-imposed limits, uncertain Federal regulations, and environmental concerns of very strong proportions. It is our trucks that roll each day at dawn, we operate the landfills and the incinerators, and we are the ones who must face a suspicious and often hostile public that takes out the garbage and trash and then just doesn't want to see it anymore.

It is curious that it's been over 500 years since we learned that the planet is not flat and, yet, somehow you pick up the newspaper each day and it tells you the sun is going to set tomorrow and the sun is going to rise; that gives, I think, sort of a legitimizing atmosphere to this philosophy that our horizon is flat in all directions and that we can just continue to collect our garbage and drive 20 or 30 miles out of town and dump it somewhere. Obviously, the planet is round and we're going to eventually run into our own trucks.

But it's a matter of lag; I think it's the main comment that I've heard from other speakers—and much of my written comments also deal with this deprecation of our society as being committed to this horrible habit of throw-away. But it's a mindset, and it's a mindset that has to be attacked and eventually can be eroded, I believe.

We, in county government, as I said, deal with this everyday, and we focused on NACO very strongly on this issue at our 52d Annual National Conference in July. The full membership adopted a new environmental policy which calls on counties to reemphasize waste reduction and recycling, and resource recovery facilities, and to move away from conventional landfill as a primary means of solid waste disposal.

I've taken the liberty of attaching to my formal, written comments the entire statement in our American County Platform which deals with the subject, and I include it for the record.

We assign, as I said, the highest priority to waste reduction and recycling efforts. These values must become as much a part of the industry's marketing strategies as bubble packs and plastic squeeze bottle containers are now. And, while these efforts should be encouraged on the local and State levels by the adoption of bottle bills on all levels, and by mandating source separation, and supporting community recycling efforts, we need more than just a little help from our friends here in Washington.

And, we believe that the Federal Government should undertake a research and incentive program to encourage manufacturers and packagers of retail and wholesale goods to minimize, if not eliminate, the amount of throw-away or disposable products and packaging that reaches the household. This could include consideration of National legislation requiring refundable deposits on returnable beverage containers. Now, we hear about that a lot, and it's been the returnable item that gets the most sex appeal and the most attention in the media. But, I think it's important to say that if we could accomplish that Nationally, I think that would be a frontal attack on what I talked about before as a mindset. People everywhere in this country have to deal with returning those containers. It will begin a breakdown of the whole laziness, the whole attitude that permeates us, which will make the next step—which could be batteries, it could be tires, it could be all the other things that are piling up in our doorsteps—easier.

Our second priority is resource recovery. As landfill space becomes less available and less environmentally safe to use, we must take aggressive efforts to recover what we can out of the waste stream and to reduce the rest to the smallest residue possible. Again, we hit the parable about this planet being a space particle and every thing on it being finite; and, so if that is carried out, all the things we use have to be reused eventually or else we're going to run out of them.

The modern, state-of-the-art waste-to-energy plant is a far cry from the old fashioned, smoke-belching incinerators that used to pollute the landscapes of our older cities. These facilities equipped with dry gas scrubbers and fabric filter bag houses control virtually all of the acid gases and particulates while generating electricity that can be sold to help defray the cost of the installation. Best of all, these plants reduce massive volumes of garbage down to a fraction of its original amount.

For example in my own county, Dade County, we operate three solid waste disposal facilities, two landfills, and a resource recovery plant, all of which serve about 2 million people. The resource recovery plant was one of the first generation facilities built in the 1970's and, after experiencing numerous financial, technical and environmental problems during the first years of operation, we have now contracted with a new operator—the Monterey Power Company—who has worked with us to retrofit and upgrade the physical facility; and, over the last 2 years, Mr. Chairman, the county itself has spent $16 million, and Monterey has made a commitment to spend another $45 million by the end of 1989, on necessary capital improvements.

As a result of our joint efforts, the plant is presently meeting all the emission standards contained in our operating permit. This resource recovery plant uses refuse derived fuel. It has a 3,000-ton-a-day capacity, and is selling enough electricity to Florida Power & Light Company to supply nearly 25,000 homes. It is recovering and it is selling 100 percent of the metals, producing revenues of $400,000 to $500,000 per year, and at the end of the incineration process only about 25 percent of the original volume remains to be disposed of in our landfills.

I see the red light is on, so I'll refer you to my written comments. I just would like to close with some brief discussion regarding the toxic waste program which we are very proud of in Dade County.

In 1983, we adopted a legislative package that has been termed a local cradle-to-grave approach to hazardous waste management. John Nesbit, in one of his Megatrend newsletters referred to it as "trailblazing." It includes a hazardous waste cleanup trust fund, a liquid waste transporters' permit program, and the regulation of underground storage facilities for hazardous materials. The entire program itself, funded through fees charged for mandated permits and licenses using the annual permit mechanism our county Department of Environmental Resource Management, monitors and regulates all activities dealing with transportation and storage of hazardous substances in our county. In using these funds in our own revolving mini-superfund, we have the capacity and actually have performed cleanups and remedial actions to prevent hazardous situations from persisting.

All over this nation local governments have used their ingenuity and financial resources to address the grave solid waste disposal problems which they have faced. We do not expect Washington to do our job, however, we would hope that Washington would make our job easier and not more difficult. We need and want appropriate and necessary regulations in a realistic legislative framework within which to operate. This subcommittee has devoted much of its time and energy to the development of far-reaching, effective environmental legislation in the past. It has also not hesitated to apply a constructive prod to EPA when that was necessary, and we're confident that that record of performance will continue; and, we pledge our working with you, and look forward to any questions that you might have.

Senator Baucus. Thank you, Mr. Ruvin, very much.

The next witness is Mr. Vardy.

## STATEMENT OF PETER VARDY, CHAIRMAN, INSTITUTE OF SOLID WASTE DISPOSAL, NATIONAL SOLID WASTES MANAGEMENT ASSOCIATION

Mr. VARDY. Thank you, Mr. Chairman. It's a pleasure to appear before you this afternoon.

My name is Peter Vardy. I'm chairman of the Institute of Solid Waste Disposal, which is a unit of the National Solid Wastes Management Association; I'm also vice president for environmental management for Wastes Management, Inc.

The National Solid Wastes Management Association has 2,700 member companies in all sectors of the waste service industry; and, as you might know, private waste haulers collect about 60 percent of the country's household refuse and over 90 percent of its commercial waste. Our members also own and operate around 17 percent of the nation's sanitary landfills, and I would guess that they, in terms of quantity, dispose of a good deal more waste than that.

In the limited time that I have this afternoon, I would like to focus on four major issues arising under RCRA.

The first is the need for strong Federal standards governing location, design, and operation of sanitary landfills to serve as a basic floor for State regulation to meet. It is widely acknowledged that current regulation of solid waste disposal is inadequate.

Private sector firms such as ours have, for many years, found it necessary to exceed the requirements of Federal and State regulations in order to protect human health and the environment and, I might add, to minimize our own risks, as well, through means such as: excluding liquids from our landfills; operation of extensive ground water monitoring networks; developing procedural controls on special wastes; and, utilizing state-of-the-art practices for the design and construction of soil and synthetic liners, leachate collection systems, and other critical landfill containment and control features.

For these reasons, our industry has vocally and consistently supported strengthened Federal regulations for all solid waste landfills, and has offered our own standards as a benchmark. EPA must begin to develop meaningful requirements on issues such as location criteria that work hand-in-glove with design and monitoring standards, closure and post-closure care, minimum requirements for liner or leachate collection systems, surface water run-on and run-off controls, methane gas control, financial responsibility, and waste restrictions.

Unfortunately, we believe EPA intends to leave many of these critical issues to the vagaries of State regulation and enforcement. If that happens, the effort that you put into the 1984 RCRA Amendments will have little effect on the need to modernize and unify solid waste disposal requirements.

The second major issue concerns the enormous amount of solid waste excluded from subtitle C, and all but ignored under EPA's subtitle D program—wastes which will truly become the orphan wastes of our society.

Currently, EPA has decided to focus its attention on municipal landfills. While we support strong regulation in this area, the fact remains that the agency rules will apply to only 4 percent—I repeat, 4 percent—of all solid waste facilities and, at most, 6 percent of the total non-hazardous waste stream. Industrial landfills, waste piles, surface impoundments, and land application units totaling over 200,000 in number—all of which may contain toxic materials and other potential ground water contaminants—will remain essentially unregulated except in those States with sophisticated programs.

We think this narrow approach is unsound, to put it kindly. To the extent it derives from congressional intent, we believe it is time for Congress to reassess and clarify its statutory mandate to EPA.

Our third concern is the lack of any sophisticated approach, either in the statute or in EPA's evolving regulation, to the management of special wastes—those non-hazardous solid wastes needing special attention but not warranting subtitle C controls.

Current waste disposal technology has progressed well beyond the simplistic two-tiered approach in RCRA. The country cannot afford the over- and under-regulation that results from having to choose between an extremely stringent subtitle C approach and an inadequate subtitle D program for these wastes.

We believe Congress should direct EPA to develop a special waste program within subtitle D, under which management and disposal requirements can be tailored to the kinds of potential hazards posed by these materials. Two important candidates that have received considerable public attention are infectious wastes and incinerator ash residue.

Finally, I would like to emphasize the broad industry support that exists for recycling and other waste reduction incentives at the Federal, State, and local level. No one is better positioned than the private sector to provide the institutional resources, management expertise, and technology needed to increase the role recycling must play in the country's overall waste management strategy. Our members already provide these services in hundreds of communities across the country. We urge you to consider ways to expand the markets for recyclables so that these services can take their rightful place in the national solid waste management effort.

Thank you very much, Mr. Chairman. I would be happy to answer any questions I can.

Senator BAUCUS. Thank you, Mr. Vardy. Next is Marian Chertow.

## STATEMENT OF MARIAN CHERTOW, PRESIDENT, CONNECTICUT RESOURCES RECOVERY AUTHORITY

Ms. CHERTOW. Mr. Chairman, my name is Marian Chertow. I'm the president of the Connecticut Resources Recovery Authority.

The Authority is working with about 100 Connecticut towns on solutions to their solid waste management problems. We currently have three resource recovery plants under construction and four other resource recovery projects in development. We've issued over $800 million worth of bonds for these projects. We also run four landfills around the State and are working with Connecticut towns to develop regional recycling centers so that we can achieve the integrated approach to solid waste management.

I also speak to you today, though, as an Executive Committee Member of the National Resource Recovery Association, which is part of the U.S. Conference of Mayors. Our Association was formed about 5 years ago so that we could assist local governments and authorities like mine in pursuit of alternative disposal options. Today, the U.S. Conference of Mayors represents over 800 cities nationally.

I think you've heard a remarkable consensus today, starting with your own remarks, Senator, and then I think each and every speaker, around the integrated approach to solid waste management. RCRA started a lot of this off when you prohibited open dumps with the initial law back in 1976, and we have been forced to look at other solutions; and, so you've heard them today, and I won't repeat them.

I want to discuss three main points that I feel you can help us with—landfill siting, ash disposal, and recycling markets.

I'd like to tell you a little bit about Connecticut in terms of landfill siting. In the last 10 years, Connecticut has closed 44 dumps and has opened only two landfills. Our Connecticut Department of Environmental Protection estimated that we will reach our landfill capacity in 1989—2 years from now. We've got two years left—if we weren't pursuing any other options. Absolutely everything—recycling, resource recovery—will stop in Connecticut if we can't find more landfill capacity. It is absolutely our worst problem.

But, Connecticut, like other States, is reluctant to adopt policies which may at a future time be negated by Federal action; so we're left waiting, and we're left without new landfill. We need Federal initiatives to provide positive criteria and guidance on landfills so that we can get them sited; and we do need them.

Second, on the issue of ash: First of all, it may well be very reasonable to reuse ash, just as utility ash has been reused these many years in road projects, etc. And that should be our first choice—recycling.

Second, we agree that ash should be regulated under Subtitle D, but recognize that different parts of the country have different geography and that the policy should account for these differences. For example, in our capital city, the city of Hartford, we run a landfill that just happens to have a clay base. Well that's a good base, it makes a natural liner for landfills. In other parts of our State and in other parts of the country you have sand and things that aren't as impervious and, thus, a different landfill structure or ash disposal structure may be needed.

We need technical guidance as soon as possible. Dr. Porter indicated that they're going to come out with it.

Sir, I hope you'll make sure you stay on top of that and make sure they come out with it in a very timely way.

Second, you mentioned in your remarks the EP toxicity test. You know, a little misinformation goes a long way in the garbage business, and there's a scientific consensus that the EPA tox test does not simulate field conditions on ash and, therefore, a faulty test is creating misplaced public concern about the characteristics of ash. We would like to see this test replaced with something that simulates those real conditions.

My third point is on recycling. What I want to say is that a material cannot be considered recycled if it doesn't have a market. If there's no where to put it, it's either just in a warehouse or a landfill; and it is not recycled.

Our Connecticut legislature mandated recycling this past session—25 percent recycling. These mandated programs are creating huge Government intervention in those markets. It's no longer a private business where if you have a market, sell it, if you don't, don't collect it. But when you consider recycling an alternative waste disposal system, then you really do need the Government support on market development. And since many of these markets are national and international, the cities and the States need this kind of help.

There are a few issues that I won't discuss, such as enforceability of solid waste plans and the air emission issues, because I understand that they will be the subject of future hearings before the Clean Air Amendments are considered on the Senate floor, and we look forward to that.

But, I'll say in closing that you have heard this very strong consensus about how to approach solid waste; we might differ on percentages but I think we agree on approach. But all three are important. Recycling may be a little sexier—my own background is in that field; but the others are sometimes a little harder in public acceptance—resource recovery and landfilling. We just need your help on all three to provide environmentally sound and cost-effective solid waste solutions to America's cities and towns.

Thank you.

Senator **Baucus**. Thank you, Ms. Chertow.

Our final witness is Ms. Jackie Warren of the National Resources Defense Council.

## STATEMENT OF JACQUELINE WARREN, DIRECTOR, TOXIC SUBSTANCES PROJECT, NATURAL RESOURCES DEFENSE COUNCIL, ACCOMPANIED BY BRADFORD SEWELL, SCIENCE ASSOCIATE

Ms. **Warren**. Thank you, Mr. Chairman.

I'm the Director of the Toxic Substances Project at the Natural Resources Defense Council, and I have with me today Brad Sewell who's not up at the table but who works on solid waste issues for us.

We've done a lot of work on the hazardous waste provision of RCRA and in the course of that work the glaring discrepancy between the way subtitle C operates and the way subtitle D operates has really caused us to become much more involved in the subtitle D issues.

One of the first things that became obvious in our work on subtitle D was the appalling—really appalling—lack of Federal leadership on these issues. The blame is not entirely with EPA. I feel strongly that the blame has to be shared by the Congress as well, because the direction they've given the agency under subtitle D suggests there is a significant qualitative difference between the wastes handled under the two programs; and, in fact, the evidence indicates that that's not the case at all and that's not a reasonable assumption to be making.

Presumably, if we could get the kind of source separation and control of the toxic inputs that go into the solid waste system, it might be true, but it isn't true today. So, one of the first things that we want to recommend is that you reauthorize RCRA with major new requirements in subtitle D and that you adopt the waste management hierarchy that you have enacted in subtitle C, which puts the highest priority on waste minimization, source reduction—it prefers that over recycling, but recycling is second—then treatment, and, as the very last resort, land disposal.

What we have seen in the subtitle D program is a heavy dependence on land disposal and then a rush to incineration as the alternative, rather than recycling and source reduction.

In the history of this country, we used to incinerate everything. After World War II, we discovered that there was an air pollution problem from incineration so we went wholesale into burial of wastes. Now we find out that burial has problems of its own. So now we're going back into a more sophisticated form of incineration, but incineration nonetheless—posing problems of concern about air pollution, what to do about the ash, whether these high-technology facilities are going to be operated and maintained in the way that's necessary for them to do the kind of destruction which the promoters of this type of technology claim they can accomplish. It's not something that we can be confident is necessarily going to happen.

We would recommend, as we laid out in the testimony, that in reauthorizing RCRA you specify requirements for EPA to impose for stringent design-specific Federal standards for all solid waste facilities, from municipal incinerators to landfills and surface impoundments. And, I agree very much with what Mr. Vardy has just said about the universe of subtitle D facilities and wastes that are involved and the shortcomings of the EPA's insistence on focusing entirely and exclusively on municipal landfills, of which there are only—according to EPA's subtitle D study—9,200 out of some 200,000 plus facilities.

We also urge a revision in the requirements for guidelines for State solid waste management programs to include mandatory recycling programs, procurement requirements, deposit regulations, and a mechanism to ensure the adoption of these plans.

The third element has to be a heavy emphasis on source reduction. We've heard a lot of good suggestions and, in fact, a cry for Federal assistance on packaging controls. TSCA—I have to say, having worked on it for many years—doesn't deserve more than 2 minutes of consideration as an alternative to dealing with this problem.

You can count the number of section 6 actions the EPA has taken under TSCA on one hand because of the standards the Agency has to meet to act under section 6. It's a subject for another day's hearing on the reauthorization of TSCA, which is long overdue; but I don't believe the statute is currently workable, and you shouldn't be relying on it. The agency has to prove there is an unreasonable risk for every action they take under section 6. That isn't going to necessarily be the case on all the problems of solid waste.

So, we would urge Federal regulatory efforts be enacted to reduce the overall fraction of packaging in the waste stream—which is currently one-third of the waste stream—and requirements for an increase in the recyclability of all packaging.

We also would like to see Federal actions to encourage recycling, such as preferential procurement programs. Many States have enacted procurement programs that require a preference for the use of recycled materials. The Federal Procurement Guidelines don't include such a preference.

We would also like to see some requirements, possibly, for tax credits, even capital investment subsidies for recycling technologies.

We would also like to see national standards for recycled materials, because many States are enacting requirements and they're contradictory. Rhode Island has a 50 percent requirement; New Jersey has a new law that has 10, 30, and 45 percent in succeeding years. It creates an uncertainty in the market for recyclables, which threatens the financial viability of recycling markets.

I'd like to return to the landfills issue for a minute, though, because there are really two issues here. One is upgrading the waste minimization part of solid waste management, and the other is dealing with a problem that's out there right now. We have EPA focusing on these 9,200 municipal landfills. We all know that there's a terrible problem with siting new facilities. EPA is going to come out with some requirements next month. We got a copy of a draft of those regulations and we submitted extensive comments on them to EPA which we thought went over many of the shortcomings. I'd like to submit a copy of our comments if I may.

Senator BAUCUS. Certainly.

Ms. WARREN. The agency has moved away from mandatory requirements; they're not going to require liners or leachate collection systems even for existing landfills or new landfills in very vulnerable areas. They're going to use a performance standard. The whole subtitle D program is run on a performance standard right now and with very inadequate results. So we would urge you to take a page out of the hazardous wastes control book and put the same kind of requirements in where the same kinds of hazards are presented.

Just to go over some of those hazards: EPA did a subtitle D study on the waste stream going into solid waste landfills—they looked at leachate, 48 organic chemicals found in the municipal landfill leachate; 39 of those chemicals are priority pollutants under the Clean Water Act, and 27 are on the proposed CERCLA List of the 100 most significant chemicals found at Superfund sites. The level of heavy metals coming out of the leachate is comparable to subtitle C facilities. Yet, only 15 percent of these landfills today have liners, and only 5 percent of them have leachate collection systems. They're simply sitting there contaminating the ground and the ground water.

Twenty percent of the sites on the National Priority List are presently municipal landfills. And EPA has a list of 2,000 other municipal landfills that satisfy the criteria for listing on the National Priority List; they may or may not get on there for other reasons having to do with who's going to pay to clean them up. But they ought to be on there. That's twice as many as all the sites that are right now on the National Priority List.

So, in closing, I just would say that it's a fiction to believe that there's a qualitative difference now in the environmental hazards posed, particularly to ground water, by subtitle D landfills as compared to subtitle C landfills. I think Congress needs to take a good hard look at that and address that problem.

We've gone into greater detail in the testimony and made some other recommendations for what a Federal program should look like. But, I can't urge you more strongly to really stop looking for other authorities EPA might have. I don't think they have those other authorities; the authorities they do have are not adequate, and they don't have them now under RCRA. Instead, we urge you to give new authority to them. Everyone here has said we need help from the Federal Government and there's a strong Federal role to be played.

One last point: on October 30 the President issued a new Executive Order on Federalism which says to all the Executive agencies, "you are not to do any uniform Federal standards for anything; to the maximum feasible extent, defer to the States." So, I don't think you can expect that EPA is going to do a lot of innovative work on subtitle D or in any other area if Congress hasn't told them that they have to.

Thank you, Mr. Chairman. I would be happy to answer any questions you may have.

Senator **Baucus**. Thank you very much. In this panel of four, you're a good clean up batter.

I'd like to ask the other three, do either of you agree with Ms. Warren's statement that the reauthorization should avert the hierarchy—the practical effect anyway—and starting with waste reduction, recycling, resource recovery, and landfill. I don't want to put words in her mouth but, essentially she suggested, as I heard her, that EPA, in effect, is just doing the opposite—starting with basic landfill and working back up the other way. The reauthorization of subtitle D—should we change that around in your view, the rest of you?

Mr. **Vardy**. If I may. Establishing a hierarchy of that type is quite legitimate and makes a great deal of sense. To establish a hierarchy in an absence of relating it to a regional or State-wide, or even local environment, doesn't make any sense. The mix changes as you move from place to place and needs to be taken into consideration. The answer to that is proper planning. We've really dropped the ball, EPA has dropped the ball, most of the States have dropped the ball on proper waste management planning. It is within the context of that plan that the mix or hierarchy is established. The established hierarchy is very legitimate. It makes a great deal of sense.

Senator **Baucus**. Ms. Chertow, what do you think?

Ms. **Chertow**. I think that it may well be logical to tell the States to adopt that hierarchy. The States, however, have to work out the particulars of that themselves. For example, when I heard the people from the West Coast speak, I know that their percentages are higher than ours for recycling because they have a big nursery industry so they have a bigger composting market. They are also that much closer to the Pacific rim nations where the materials leaving the Port of New York are going with that scrap metal and that scrap paper. And so, again, they have a business incentive.

I think we all should adopt the hierarchy through our State plans, but I think that different regions will have some different successes and percentages of success based on local circumstances and the ability to track industries and also hydrogeological conditions. In New England we have high water tables; we simply can't locate safe landfills without tremendous difficulty, and that is not as much a problem in your part of the country or in the Southwest; so I say yes, let's establish a hierarchy and let's make sure the States account for those differences.

Senator **Baucus**. Mr. Ruvin?

Mr. **Ruvin**. Well, as I said in my comments, our priorities would list waste reduction first, recycling next, and then down to resource recovery and landfill. Clearly, the first—source reduction—affects what you have to do in the other three; it reduces the problem; it reduces the burden. There are other values besides those connected directly to solid waste that enter into the picture when you talk about recycling and resource recovery, but those are very important values which overlap almost everything else on your table, Senator, in your duties in this committee and your duties elsewhere in the U.S. Senate. The ethics that this country has to achieve in the long term, realizing the finiteness of the planet in terms of attaching values to finite resources.

We've forgotten somehow the lessons of the early 1970s; they may be revisiting us again in the late 1980s or early 1990s. Maybe the second time around the next generation is going to learn those lessons for keeps.

Senator **Baucus**. Ms. Warren, I'd like to ask you, assuming that's correct, how do we handle practical problems that we sometimes run up against in the various States. Ms. Chertow mentioned that Hartford is in clay soil there so she's less worried about the landfill at that site compared with some other site where there's no clay and so forth; so that's a good example. But, we have this hierarchy that you mentioned, and different States will differ and different communities will differ, geological formations around the country differ and some areas are more densely populated than some others, etc. How do we, as a practical matter, implement this hierarchy?

Ms. **Warren**. I would say that if the State uses that—and I should say that some States have already adopted them, I know New York has and I'm sure others have, too—but, in their planning for what kinds of facilities they're going to need, it means that you disfavor landfills. If communities know that, and if the program is set up in such a way that there are incentives created to do other things or you legislate recycling requirements rather than just leaving it to the locality to decide what they want to do—if they can site a landfill fine, they'll do that—if they know that that isn't fine because the State requirements are that you take these other alternative approaches first, I think communities will do it. I agree that it's a matter of changing the way people think about things.

Senator BAUCUS. But, to what degree do we, the Congress, leave it to the States to decide how to implement that hierarchy; should Congress or EPA exercise some very strict control here in pushing that hierarchy, or should Congress just say, here's the goal States, it's up to you?

Ms. WARREN. If you should enact it, just about every environmental statute has a State program component that includes requirements for a plan; almost all of them do. And the required elements of the plan are set out in the agency's regulations and often in the law, and the States have to meet those requirements in order to get primary enforcement responsibility. Enacting the hierarchy does not have to be in such great detail that the States have no flexibility to deal with their own site-specific kinds of problems. I think you have to leave that to the States.

But, the problem is that what we're seeing is a movement away from landfilling, because of the practical problems with siting new facilities or because they are running out of space or the contamination problems are such that they just have to close landfills down. The States are going to incineration in a big way, and leaving these other alternatives such as recycling and source reduction, which ought to be higher priority—just not dealing with them. Represented here today are the best States in the country telling us what they're doing; they are not necessarily representative of what else is going on out there.

Senator BAUCUS. To what degree will States on their own, do you think—and you've somewhat answered the question already—will conscientiously pursue this hierarchy; do you think most States will and some won't?

Ms. WARREN. I don't think they have; we're not seeing it.

Senator BAUCUS. What I'm trying to get at is a more precise delineation as to where and how the Federal Government should play an active role in developing these State plans.

Ms. WARREN. Well, if the Federal Government states the hierarchy as its policy for solid waste, as they've stated it as the policy for hazardous waste, and required the State plans to incorporate the hierarchy, they could still leave it up to the States as to how they want to implement it. But without even saying these are the goals, you don't really influence the directions that the States take; and then, I think, cost considerations predominate.

I'd like to add one other thing that I forgot to mention on the question of what the Federal Government ought to do the next time around.

We've had recommendations that certain products be prohibited and TSCA was mentioned as a way to do that. We don't have any constraints now on the introduction of new packaging materials into the stream of commerce and we should. We recently discovered in New York that there's an all plastic soda can which has a little aluminum ring at the top that's being test-marketed in a number of States now. It's going to come in and take over just the way plastic has taken over from glass and other more biodegradable materials. There seems to be no way to really stop that, although individual States, I suppose, could legislate it away, but then you come up against interference with interstate commerce types of complaints. I think the Federal Government should act to constrain such new products from entering commerce.

I think there's a role for the Federal Government to do the same for styrofoam, which lacks redeeming social value as far as I'm concerned and as far as a lot of other people are too.

There are certain things that you could simply prohibit. You've done it in other statutes for other reasons and I think that there's a place for that kind of activity also, because it sends a signal out to industry everywhere that we have a preference for degradable materials.

It even becomes something to advertise almost as a reason to purchase somebody's product. It's like hair dryers that don't contain asbestos. That became one of their big advertising points once it was brought up.

Mr. **Vardy**. If I may, I have one comment on that point. To establish a hierarchy as a general principal is fine; to establish minimum requirements or percentages that would be attributable to each of those hierarchical elements is very dangerous and it would be very difficult in States where the cost of disposal is $3 a ton, to force down their throats $35 a ton recycling, versus those States where they're paying $60 a ton for disposal and can accomplish $35 recycling.

So, as a general principal, that isn't a very worthwhile thing to do. This issue of forcing it by numbers is very dangerous because what happens then is you just start storing the recycled material, not knowing what to do with it.

Senator **Baucus**. How do we get at that?

Mr. **Vardy**. We get at it through establishing adequate markets so we know where to put it when it's collected; I think there are States in which it isn't an absolute necessity to engage in a very high level of recycling when other options are more practical.

If you're talking about bang for the buck, you ought to look at that on a statewide or regional basis. In a State that is hardly populated, that is arid, that has good geology, that has a great deal of open space, it is very difficult to suggest that they ought to recycle 50 percent of their waste.

Senator **Baucus**. Mr. Ruvin.

Mr. **Ruvin**. I would disagree, in part, with that. I think that the tone really has to be set here. And, yes, I would agree that specific percentages probably shouldn't be mandated; but I think a more difficult task would be, and I think this would probably require additional research—that the criteria resulting from the adoption of that hierarchy would have to deal with environmental issues, would have to deal with issues of geology, issues or criteria that make it not just financially practical, but actually physically practical to do, because to allow the cop-out on a financial basis, I think, disserves the overall purposes. We are one country, and one out of every four families in America moves to another State each year. So that we're not dealing with little segments of America that go by different rules.

Ms. **Warren**. I agree with that last statement. I mean, I think you can't just do it on the basis of bang for the buck because that's back to landfilling again which remains the cheapest option, and that's the one we are trying to get away from. Over the long-term, it's cheap today and very expensive when it comes time to clean it up. Even the EPA regulations that will be coming out, if they have any technical specs at all for landfills, which we doubt, originally proposed that the liners last for 20 years. Well, the material is going to be there longer than 20 years; and it's a guaranteed situation in the future that's going to require some money for cleaning up.

I wasn't advocating percentages in the hierarchy, by the way; but, I do think that you've got to have environmental considerations govern to the largest possible extent.

Senator BAUCUS. What States have banned or prohibited certain materials somewhere or other; have any?

Ms. WARREN. New Jersey has banned those plastic six pack loops that hook them all together.

Senator BAUCUS. New Jersey has banned those; they can't sell those plastic ties; is that correct?

Ms. WARREN. Yes, and I heard a legislator from Oregon 2 weeks ago say the plastic can is not going to come into Oregon—the plastic soda can. So, I don't know, but I think there are precedents.

Senator BAUCUS. Well the States have sure been the laboratories here, as someone once said here in the Congress, and I think it's generally true. You all have done a lot and I appreciate what you've done. This is an issue, obviously, that we're going to deal with in the next several years. But, I hope that we can come up with a very good reauthorization next year. I ask all of you, and those of you who are also not here, to keep working with us as we try to draft this new statute.

Yes?

Mr. RUVIN. Senator, I'm sorry to interrupt, but you asked the question to an earlier panel which I think should be focused on a little bit. You asked the question are there any studies that really do state that there is a positive bottom line for recycling, and it occurred to me that yes, there are some studies that deal with specific products—specific types of packaging, but there probably aren't any studies that deal with the entire flow, the entire stream. That might be something that really would make sense for the Federal Government to do—to do that kind of a study to once and for all justify that; because I think that you're right that intuitively it's there, philosophically it's there, and if we can really translate that into a bottom line, I'm confident that it will show a——

Senator BAUCUS. I think that's a good idea and we're going to have to find some reputable, objective outfit that can do it. It would be very helpful.

Thank you very much. The hearing is adjourned.

[Whereupon, at 3:39 p.m., the subcommittee was adjourned, to reconvene at the call of the Chair.]

[Statements submitted for the record follow:]

STATEMENT OF
J. WINSTON PORTER
ASSISTANT ADMINISTRATOR FOR
SOLID WASTE AND EMERGENCY RESPONSE
U.S. ENVIRONMENTAL PROTECTION AGENCY
BEFORE THE
SUBCOMMITTEE ON HAZARDOUS WASTE AND TOXIC SUBSTANCES
OF THE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
UNITED STATES SENATE

December 3, 1987

Mr. Chairman and Members of the Subcommittee, I am J. Winston Porter, Assistant Administrator for the Office of Solid Waste and Emergency Response. I am responsible for implementation of the Resource Conservation and Recovery Act (RCRA) at the Environmental Protection Agency (EPA). I appreciate this opportunity to discuss the Subtitle D solid waste program under RCRA. With me today are Frank Blake, General Counsel; and Marcia Williams, Director of the Office of Solid Waste.

In your letter of invitation you asked that I discuss nine key areas relating to Subtitle D implementation, namely state planning activities, EPA's level of funding, recycling, hazardous constituents in products, EPA's solid waste study, criteria for land disposal, procurement guidelines, incinerator ash, and CERCLA releases at municipal landfills. In these prepared remarks I will discuss each of those issues; more detailed responses to the questions you raised in your letter are contained in a separate transmittal. I will also touch briefly on another subject of particular interest to the Chairman, various "special" wastes.

## I. INTRODUCTION

Let me begin by saying that this is certainly a timely and important hearing. The ongoing difficulties in siting landfills or incinerators, the concern over incinerator ash, trash washing up on East Coast beaches, and concern over special wastes have all focused a great deal of attention on solid waste disposal. It is apparent that solid waste issues are beginning to share center stage with the hazardous waste issues that have dominated public attention for the last eight to ten years.

Municipal solid waste is generated in the United States at an ever increasing rate and is expected to grow. The amount generated in the United States was over 150 million tons per year in 1984 and will increase to approximately 190 million tons by the year 2000. Our per capita generation is much higher than other industrial nations.

The Agency has learned a great deal about municipal solid waste since 1979, when EPA first promulgated federal criteria to set minimum national standards for the disposal of non-hazardous solid waste, which includes municipal solid waste, industrial wastes and large volume wastes. For example, we know that while the amount of this waste stream is increasing, the mix is also changing, highlighted by expected large increases in paper and plastic wastes. We also know that a limited amount of municipal solid waste is recycled, about 15 million tons/year, and that final disposal is still dominated by landfilling (over 90 percent), with less than ten percent incinerated. There are about 6000 currently operating municipal solid waste landfills, with many thousands of closed units. Approximately 160 Subtitle D landfills have either been proposed or placed on the Superfund National Priorities List.

Although some past management practices have caused problem cases, there has been considerable improvement over time in landfill management. Our general belief is that modern, well-engineered and managed landfills do not cause significant health and environmental risks.

At the outset, I want to note that a national solid waste management strategy must draw upon well designed and operated landfills and incinerators, in addition to recycling and source control. There is no single panacea to solve all of the problems of solid waste management. Each community, region and state must find its own solution. Indeed, we continue to believe that the basic responsibility for solid waste management resides at the state and local level.

Now let me address the issues you raised. In each instance, I will briefly discuss our current Subtitle D activities and general direction for the future.

## I. STATE SOLID WASTE PLANS

Section 4004 of RCRA required the Agency to develop technical criteria for defining acceptable solid waste disposal practices. In addition, Section 4002 required the Agency to develop regulations for State plans that would direct states to develop an overall strategy for providing adequate solid waste management capacity. In 1979, the Agency promulgated regulations to satisfy these statutory requirements. By the early 1980s, the Agency had approved twenty-five state plans.

Although RCRA requires states to have EPA approved plans in order to receive funding for implementation of their plans, there is no statutory language requiring states to submit plans. Currently, of the remaining states that have not had their plans approved only the state of New Jersey is actively pursuing Agency approval of its plan.

As mandated by RCRA, our priorities in recent years have been heavily focused on building a framework for the management of hazardous waste; and we have made great strides in building the necessary hazardous waste regulatory and permitting framework. However, we also have begun to address the Hazardous and Solid Waste Amendments (HSWA) provisions for solid waste. We now need to set a course that ensures that we arrive at our ultimate destination of a comprehensive waste management system, be it for hazardous or solid waste, that assures protection of human health and the environment.

Without a doubt, state plans are necessary for the development of adequate and safe capacity to manage solid wastes. However, motivating the states that haven't had their plans approved to seek EPA approval is not enough to address our nation's solid waste management problems. Those states that have approved plans need to reexamine the adequacy of their plans in light of the changes in solid waste management that have occurred over the past several years.

It is my intention to formally request that states complete or update their solid waste plans. If that does not work, then Congress may need to consider sanctions or incentives to assure that states update existing approved plans as well as those draft plans that were never approved. For example, one approach could be to apply the Superfund Amendments Reauthorization Act (SARA) 104(k) provisions in an analogous fashion to solid waste plans. In other words, the Agency could be given the ability to withhold Superfund resources, after a specified date from states that do not have updated approved plans. Another option would be to amend RCRA Section 7002 to enable citizens to compel states to complete their state plans.

## III. LEVEL OF FUNDING

The overall level of EPA funding for RCRA has increased substantially since 1980. However, as noted earlier, the major emphasis of this funding has been directed toward hazardous waste issues. Provided below is the funding breakdown you requested.

| | Millions of Dollars | |
|---|---|---|
| Fiscal Year | RCRA Funding | Portion for Subtitle D |
| 1980 | $ 65,609 | $32,133* |
| 1981 | 74,278 | 16,080* |
| 1982 | 73,643 | 322 |
| 1983 | 82,033 | 29 |
| 1984 | 88,308 | 0 |
| 1985 | 135,068 | 2,094 |
| 1986 | 141,636 | 2,981 |
| 1987 | 140,754 | 3,415 |
| 1988 | 140,851 | 3,487 |

(Figures include Regional Implementation and Financial Assistance.
* Includes grant program dollars.)

In tracking the funding levels under Subtitle D it is important to realize that the relatively large allocation of funds in fiscal years 80-81 was due to the state grants program and the urban grants program. These two programs ended in fiscal year 81. The amounts under Subtitle D from 1985 on indicate funding levels for regulatory development to satisfy the revision of the criteria for municipal landfills and the Subtitle D report to Congress. Other activities that were either exclusively, or at least partially related to Subtitle D were undertaken starting in fiscal year 1985. However, these activities were not accounted for in the exclusive Subtitle D column shown above. Examples of these activities include: a report to Congress on municipal waste combustors (MWC) in fiscal year 87, the development of a study and data collection on MWC ash, and the development of the first phases of a report to Congress on mining wastes and a determination that many of these wastes will be regulated under a special Subtitle D category. Furthermore, other of the Section 8002 special study wastes are likely to be regulated under Subtitle D, but the funding for these activities is not shown in the column for Subtitle D.

Currently, we are in the process of redirecting Agency resources in FY88 to more fully address evolving Subtitle D concerns. There is still uncertainty regarding FY88 resource levels with the possibility of Gramm-Rudman reductions and the fact that the details of the recent budget compromise have not yet been worked out. However, based on the budget the President submitted, we expect to redirect 10-15 work years and about $1.5 million to

Subtitle D initiatives. Much of this increased activity will be directed toward MWC ash and recycling investigations. We intend to consider the further expansion of Subtitle D activities in FY89.

## IV. RECYCLING PROGRAMS

A greatly increased recycling program is certainly one of the "waves-of-the-future" for solid waste management. In this section I will first outline the national picture, what some states, localities and other countries are doing, and close with some thoughts regarding federal initiatives.

### National Picture

As a national matter, we currently recycle about ten percent of our municipal solid waste. This includes about 30 percent of our newspapers, 40-45 percent of corrugated cardboard, and 10-15 percent of office paper. In addition, we recycle about 41 percent of the aluminum cans used. Other programs include the recycling of about ten percent of glass bottles, two percent of non-aluminum metal cans, and two percent of plastic products.

The Federal government is beginning to encourage markets for recycled materials. The Federal government purchases two percent of all paper used in the United States. Beginning next October, Federal agencies will be required to purchase paper and paper products containing the highest percentage of recovered materials possible. This procurement requirement should increase the market for recycled paper and help demonstrate the technical and economic viability of purchasing recycled paper. I will discuss later the procurement guidelines that we have promulgated or proposed requiring Federal agencies to purchase a variety of recycled materials.

## States and Localities

Many states and municipalities have implemented or are planning recycling programs. These range from the over 600 largely voluntary curbside programs to New Jersey's state law mandating certain recycling.

To illustrate the diversity of these activities a few examples are provided.

- Minnesota recently passed legislation requiring mandatory recycling of solid waste by 1990. Key provisions: 1) require state procurement of recycled materials, 2) encourage the development of markets for recyclable materials, 3) ensure that recyclable materials are recycled, and 4) prohibit lead-acid battery disposal in municipal solid waste after January 1, 1988.
- New Jersey has a mandatory statewide source separation and recycling program that calls for recycling of up to 25 percent of the municipal solid waste stream and processing of 50 percent of the total solid waste volume through resource recovery systems.
    - In Woodbury, New Jersey, residents that don't separate their trash get orange warning stickers on trash cans and can receive a summons and fine of up to $500.
    - Camden County, New Jersey has launched a highly successful mandatory recycling program that has significantly reduced reliance on landfills.
- New York City currently recycles 10 percent of the 25,000 tons of refuse generated daily and has a recycling goal of 15 percent.
- Rhode Island set a minimum goal of 15 percent for recycling requires the separation of solid waste before the material can be disposed of.
- Connecticut requires mandatory recycling of not less than 25 percent of the solid waste generated in the state by January 1, 1991.

- California recently enacted a bottle recycling law which establishes a minimum redemption value for each can and bottle paid for by a state fund to which bottlers must contribute. It also sets up a state sponsored mechanism to recycle the 12 billion beverage bottles, cans and plastics discarded yearly.
- Oregon currently recycles nearly 22 percent of its solid waste stream. It was the first state to pass a bottle bill and more than 20 percent of soda and beer bottles are returned for recycling through the State's redeposit system.
- The City of Minneapolis, MN will credit residents' trash bills for the amount they separate.
- The City of Islip, New York recently put into place a mandatory source separation/recycling program.
- In Philadelphia, Pennsylvania, the City recently started a pilot mandatory recycling program that features curbside pickup of glass, paper and metals.

## Other Countries

The waste minimization and recycling ethic is more familiar in other countries that are already facing the waste disposal problems brought about by population density and scarcity of land. The Japanese now recycle about 50 percent of their solid waste, for example. In West Germany, cities are separating the organic wastes out of the waste stream so they can be composted. Brief summaries of these programs, and several others, are provided below.

- In Germany, the government is pursuing the legal option to prohibit and reduce the use of hazardous substances, and is looking at requirements for the government to require labeling systems for products containing hazardous constituents.
- In Japan, regional governments work closely with industry to implement programs that include tax incentives,

government grants as subsidies, low interest loans, waste reduction agreements in permits, and technical assistance in the form of site consultations and training seminars.

- Canada has implemented tax incentives, technical assistance, government grants and regional waste exchange programs.
- Sweden has focused on establishing technical development labs, demonstration projects and industrial research.

Federal Initiatives

With the examples of successful state programs and the efforts of other countries in mind, coupled with continuing disposal facility siting difficulties, we must determine what the Federal role should be. Let me start with a few principles to guide our recycling efforts.

- First, recycling will be an evolutionary, not revolutionary, concept. Research and marketability of products will be key to the evolution of recycling programs nationwide.
- Second, landfills (through methane gas recovery) and incinerators (through energy recovery) can also be part of the recycling ethic.
- Third, as shown by the examples of recycling efforts in the states, localities and other countries, approaches to recycling vary considerably. It is probably not necessary or desireable to mandate recycling with a single Federal regulatory approach.
- Finally, while state and local regulations may be desireable, recycling will also depend strongly on voluntary efforts by an informed public, as well as on development of markets for the recycled materials.

With these provisions in mind I want to list some near-term Federal activities which should significantly increase recycling in the country.

- Develop a clearinghouse that would match recycled wastes with industries that could utilize them.

- Evaluate new recycling technologies.
- Assess market forces for key materials.
- Complete the procurement guidelines required by RCRA so that the use of recycled materials by the Federal government can be expanded.
- Investigate ways to minimize the waste stream and to make it more recyclable.
- Evaluate new State recycling initiatives.
- Become an information source for states interested in forming new program.
- Facilitate state-to-state and community-to-community assistance and interaction.

## V. HAZARDOUS CONSTITUENTS IN PRODUCTS

There are a variety of hazardous materials found in municipal solid wastes but usually in small quantities relative to other wastes. These hazardous materials are derived from household wastes and from commercial generators that dispose of less than 100 kilograms per month. For households, toxic constituents are found in a variety of cleaning agents, automotive products, home maintenance items, lawn and garden products, and miscellaneous items such as batteries and electronic devices. Other municipal wastes disposed of in landfills that could pose a hazard include used oil, batteries, household chemicals and plastics.

Very small quantity generator hazardous wastes account for a wide variety of materials, including such items as paint wastes, dry cleaning residues, various acids and alkalis, photographic wastes, pesticides, and many others. Used lead acid batteries are the largest source by weight of hazardous waste in municipal waste landfills.

The EPA is examining the use of authorities under the Toxic Substances Control Act (TSCA) to control the production and disposal of certain hazardous constituents. Under TSCA, EPA must show that the manufacture, processing, distribution, use or disposal of a product will cause unreasonable risk to human health or the environment before a control action can be taken.

Unreasonable risk is determined by weighing the risks of the current situation against the benefit of controls. Risks and costs must consider the product before and after controls as well as the comparative risks and costs of substitute products.

## VI. SOLID WASTE DISPOSAL REPORT TO CONGRESS

The Solid Waste report required by Section 4010(c) of HSWA will soon be entering final Agency review. It is expected that the report to Congress will be transmitted in early 1988. Some of the key findings which are expected to result from this work are the following:

- The Subtitle D universe is large and diverse with the large majority being industrial and mining wastes. Of the 226,000 Subtitle D facilities identified, about 86 percent are surface impoundments, 8 percent are land application units, 6 percent are landfills, and 2 percent are industrial waste piles.
- The landfilling of most municipal solid waste has created capacity shortages, with nearly 70 percent of all municipal landfills expected to close within 15 years.
- State Subtitle D programs are generally inadequate. Several suggestions for improvement will be included in the report that will lead to improved enforcement and better long term planning.

## VII. CRITERIA FOR MUNICIPAL SOLID WASTE LAND DISPOSAL

EPA is in the process of writing proposed new rules for municipal solid waste landfills. They will be proposed in early 1988 and are expected to be finalized by the end of the year. HSWA specified that those new rules should require groundwater monitoring, location criteria, and criteria for corrective action. EPA is making every effort to craft consistent requirements for the nation as a whole, while still giving States the flexibility to meet the unique circumstances of individual landfills.

Included in the proposed rules will be a variety of required engineering controls for municipal landfills, including run-on/run-off controls, methane gas controls, daily cover requirements, and closure stipulations. Groundwater monitoring will also be required to detect releases from units. Requirements for other engineering controls such as liners and leachate collection systems are expected to be "performance-based." Those performance standards will allow states flexibility in developing their own regulations in a manner appropriate to environmental conditions in their states. Finally, the rule will also carry provisions for corrective action to clean up releases that threaten human health and the environment.

These regulations will establish a baseline of protection that will help alleviate some of the public concerns regarding landfills. They will also impose much greater costs on the operation of landfills in the future.

## VIII. PROCUREMENT GUIDELINES

Section 6002 of RCRA directs all procuring agencies that use appropriated Federal funds to procure items containing the highest percentage of recovered materials practicable given that reasonable levels of competition, cost, availability, and technical performance are maintained. The Agency is responsible for designating items that can be produced with recovered materials, and for promulgating guidelines to assist procuring agencies in carrying out the requirements of Section 6002 and for implementing the policy and programs at all levels of government.

To date, the Agency has promulgated guidelines for fly ash used in cement and concrete and for paper and paper products made from recycled materials. The Agency has proposed guidelines for procuring asphalt made from recycled tires and re-refined lubricating oils. The agency has also proposed amendments that would strengthen existing paper guidelines. The Agency is also in the process of developing guidelines for retread tires.

## IX. MUNICIPAL WASTE COMBUSTION ASH

Let me now turn to the subject of municipal waste combustion (MWC) ash, which has received considerable public and media attention recently. There are a number of legal and technical issues related to ash, and I want to discuss EPA's approach to each.

First, in the near term we are planning to develop the following items:

- Technical guidance for the proper handling for MWC ash; and

- Our legal interpretation of the status of MWC ash with respect to Subtitle C (hazardous waste) and Subtitle D (solid waste) portions of RCRA.

After taking comment on those above aspects, our intent is to develop a regulation for MWC ash as a "special waste." I will now describe our current understanding of the legal and technical situations.

Legal Issues

In response to requests from states, localities, and other groups, the EPA has reviewed the legal status of ash residue from the combustion of municipal wastes. The legal issues revolve around three types of situations:

(1) A MWC facility which burns only household wastes.

(2) A MWC facility which burns household waste and non-hazardous commercial or industrial wastes but which also recovers energy from the burning.

(3) A MWC facility which burns household and non-household wastes, but which does not practice energy recovery.

First, it is helpful to provide the entire RCRA Section 3001(i), entitled "Clarification of Household Waste Exclusion." This subsection reads as follows:

> "(i) Clarification of Household Waste Exclusion - A resource recovery facility recovering energy from the mass burning of municipal solid waste shall not be deemed to be treating, storing, disposing of, or otherwise managing hazardous wastes for the purposes of regulation under this subtitle, if --
>
> (1) such facility --
>
> (A) receives and burns only --

> (i) household waste (from single and multiple dwellings, hotels, motels, and other residential sources), and
>
> (ii) solid waste from commercial or industrial sources that does not contain hazardous waste identified or listed under this section, and
>
> (B) does not accept hazardous wastes identified or listed under this Section, and
>
> (2) the owner or operator of such facility has established contractual requirements or other appropriate notification or inspection procedures to assure that hazardous wastes are not received at or burned in such facility."

With regard to the first situation, that is an MWC facility which accepts only household waste, the Agency's regulations make clear that household waste is exempt from Subtitle C, regardless of whether the facility recovers energy. 40 CFR Section 261.4(b)(1). This is the so-called "household waste exclusion," and it applies to the entire waste stream, including ash residue. It was this exclusion that Section 3001(i) was intended to clarify, by extending the exclusion to resource recovery facilities that receive non-hazardous commercial and industrial wastes as well as household wastes. As is apparent from the face of the statute, in extending the reach of the exclusion, the section distinguishes between facilities that recover energy and those that do not.

Currently, EPA's regulations merely restate the statutory language. In the preamble codifying this statutory language, however, EPA advanced an interpretation of the statute that would subject ash residue's from energy-recovering MWC's to Subtitle C regulation if the ash exhibited a characteristic of hazardous waste. The Agency has reexamined that interpretation and now concludes that it may have been in error. The Agency believes that the language and legislative history of Section 3001(i) were probably intended to exclude these ash residues from regulation under Subtitle C.

It seems clear that Congress' interest in Section 3001(i) was to encourage energy recovery. Under the section, the reach of the household exclusion was to be extended for facilities that recover energy. The Agency's prior interpretation of the section would restrict the exclusion with respect to ash residue for facilities that recover energy as well as those that do not. This appears inconsistent with the reach of the household exclusion itself (which clearly covers ash). It also appears inconsistent with the expressed legislative intent that "[a]ll waste management activities of such a facility, including the generation, transportation, treatment, storage, and disposal of waste shall be covered by the exclusion...." S. Rep. at 61 (emphasis added).

To the extent, however, that non-resource recovery incinerators accept wastes from non-household sources, the owners or operators of those facilities must ascertain whether the ash generated as part of the incineration process is hazardous. Section 3001(i) does not extend the household waste exclusion to that situation. One method for determining whether a waste is hazardous is the Extraction Procedure (EP)-Toxicity test procedure outlined at 40 CFR 261.20 and 261.21. The Agency has developed a draft protocol for the sampling and analysis of incinerator ash under the EP-Toxicity test, to be finalized in the form of interim guidance in the near future.

## Technical Guidance

Notwithstanding the exclusions provided by RCRA for certain ash residues, the Agency is concerned about the potential impact on human health and the environment of such residues. Our studies, as well as those of others, indicate that such ash residues can contain contaminants, particularly heavy metals, at concentrations of potential concern. Therefore, as noted earlier, we intend to soon propose technical guidance for the proper handling of these ash residues. A brief summary of our preliminary thinking on such guidance is outlined below.

> Waste Handling. A transporter should ensure that ash, whether bottom ash, fly ash, or combined ash is properly wetted or contained to ensure that there are no dust emissions, either during loading, transport, or unloading at the waste pile or landfill. The ash should be wet enough so the surface of the ash remains damp after unloading at the waste pile or landfill until it can be covered with soil or dust suppressant.
>
> Waste Transport. Containers or trucks used for the transportation of ash need to be leak resistant. The transport container or truck body should be designed and constructed such that there are no closures at or near the bottom. As an alternative, closures should be adequate to prevent leakage under normal transportation conditions. Gasketed closures should be fitted with gaskets or efficient material that will not be deteriorated by the ash. The transport vehicle also needs to be enclosed or covered to prevent the top surface of the

load from becoming dried with resulting emissions during transport.

Disposal. The ash residues can be disposed of in the form of fly ash only, bottom ash only, or combined fly and bottom ash. Most current energy recovery units practice combined ash disposal. Because our studies, and those of others, have shown the more serious metals concentrations to occur in fly ash, EPA will likely propose different standards for this component than for combined or bottom ash. Our present thinking is as follows:

- For fly ash only an option being considered is disposal in a monofill equipped with double liners and a leachate collection system.
- For combined or bottom ash an option being considered is disposal either in a monofill equipped with a composite or clay liner or codisposed in a municipal refuse landfill equipped with a double liner or composite liner (if treated or source separation).

Other Provisions. As noted earlier in the testimony, we will soon be proposing new criteria for municipal solid waste landfills. These criteria will involve a number of other provisions which will also apply to ash, such as ground-water monitoring (except that analysis would likely be more limited for ash), location restrictions, general operation requirements, corrective action, and closure/post-closure requirements including financial responsibilities.

Recommendations for Transition. Currently, regulations in 40 CFR 241, 243, and 257 apply to the management of ash.

EPA recognizes the practical constraints imposed upon implementation of new ash technical guidance for currently operating facilities. Therefore, the Agency will likely propose certain guidance for the transitional period from current to new practices. The following types of guidance could apply to currently operating systems.

(1) Vehicles used to transport ash from the facility should be covered while in transit and the trailer bed lined to prevent leakage of any liquid draining from the ash cargo.

(2) If the ash is temporarily stored, appropriate measures should be taken to eliminate fugitive dust emissions (e.g., containment, cover, wetting) and to contain liquids which might drain off/from the ash pile.

(3) Should the community need to temporarily continue disposal of the ash in a landfill having a design that is inconsistent with those described in this guidance:

  (A) leachate generation should be retarded (e.g., cover material should be used to eliminate fugitive dust emission rather than wetting the ash);

  (B) berms and other surface run-off containment features should be constructed; and,

  (C) any practice which might aid future retrievability of the ash should be the standard (e.g., isolation of the ash from other wastes).

(4) Implementation of the groundwater monitoring recommendations contained in this guidance should be initiated. As a first step, a preliminary site assessment, including a characterization of the hydrogeology, should be undertaken.

## X. CERCLA RELEASES FROM MUNICIPAL LANDFILLS

Approximately 160 of the 951 proposed or final sites on the Superfund National Priorities List are municipal landfills. With respect to such landfills our policy is to list sites on the NPL when problem sites are brought to attention by states or others, and when the site scores above 28.5 on the Hazard Ranking System. It should be noted that of the 27,000 sites currently in the Superfund data base about 22 percent are municipal landfills.

Under current authorities Superfund is the Federal cleanup program available to municipal landfills. When the new Subtitle D municipal landfill regulations are in place, states will have to develop corrective action provisions that would force owner/operators to remediate sites with unacceptable releases. At that point corrective action would be under state law, although it is possible to still use authorities under CERCLA to compel clean-ups.

## XI. SPECIAL WASTE

It no longer seems appropriate to think in simplistic terms with respect to "hazardous" or "solid" wastes. Instead, we must begin to think in terms of shades of gray, practicing an appropriate level of care in disposing of all solid wastes.

Mining waste falls into this gray category. EPA completed a report to Congress in 1985 on major sectors of the mining industry. The report found that mining generates very large volumes of waste: 1.4 billion tons per year. Mining waste is a concern primarily confined to a few states many of which already have active waste control programs. Less than one percent of all mine waste appears to be hazardous. EPA has conducted a preliminary analysis of a large number of Superfund sites, has completed an analysis of state regulatory requirements and is now examining regulatory alternatives for mining waste under Subtitle D of

RCRA. EPA is developing Subtitle D standards for mining waste that address such factors as stability, groundwater, surface water and direct human contact. Other wastes are also being considered for inclusion in the special waste category.

The July 3, 1986 regulatory determination for mining waste stated "The Administration will work with Congress to develop expanded Subtitle D authority to support an effective State implemented program for mining waste." We are examining the type of program that will be appropriate for Subtitle D wastes.

## XII. FINAL COMMENTS

Mr. Chairman, it has been a pleasure to be here and to present these comments. I have attempted to convey a sense of what EPA is doing in the highly important solid waste area. There is little question that EPA will need to be very aggressive in the Subtitle D area so that:

- Landfills are improved both in design and in operation.
- Municipal incinerators do a proficient job of energy recovery, air pollution control, and ash management.
- Perhaps most importantly, source control and recycling are greatly expanded in the country.

Finally, we will need to work closely with States and localities, who will continue to have the basic solid waste management responsibility, to see that their planning is improved and the public fully involved.

Mr. Chairman, this concludes my statement. I would be happy to answer any questions you and members of the Subcommittee may have.

# EPA RESPONSES TO PREHEARING QUESTIONS

## SUBTITLE D: WASTE-TO-ENERGY FACILITIES

Question 1 (a) & (b): Sections 4001 and 4003(d) of HSWA require comprehensive plans to include consideration of adequate provision for present and reasonably anticipated future needs of the recycling and resource recovery industry in determining the size of waste-to-energy facilities. Has the Agency implemented this provision? If so, when and how was it implemented?

Answer: EPA addressed the general concern of these requirements in the State Planning Guidelines which EPA promulgated in 1979. In particular, Subpart D of the Guidelines provides recommendations for State resource conservation and recovery programs. According to EPA's Guidelines, State plans should provide for:

- Analysis of waste composition with emphasis on recovery potential for materials (e.g., grades of recoverable waste paper, glass and metals) and energy (fuel value).
- Identification of available and potential markets for recovered materials and energy; including assessments of materials and energy specifications of user industries, minimum quantity requirements, and pricing mechanisms.
- Use of combinations of source separation, recovery of materials, and recovery of energy to achieve the most effective resource conservation and economic balance.

The Agency has not implemented this provision since passage of HSWA although as mentioned above we believe we have addressed the issues through the 1979 State Planning Guidelines (40 CFR Part 256.30) with the exception of one state the Agency has not reviewed any state plans since passage of HSWA therefore, we are not aware of any current state efforts to implement these HSWA provisions.

Question 1 (c): Have any petitions been submitted to the Agency concerning this provision and what response was provided by the Agency?

Answer: A petition was submitted on behalf of the American Paper Institute, Inc. The petitioner asked EPA to "promulgate regulations so that every state, local or regional solid waste planning agency is able to fully provide for the recyclers' interests when sizing a waste-to-energy facility or developing a solid waste plan." EPA's response indicated that we plan to address this issue more fully as we consider State planning efforts to implement the upcoming revisions to the Subtitle D landfill Criteria. Considering that our current regulations at 40 CFR 256 do allow planning agencies to fully provide for recycler's interests, it is unlikely that we will revise our requirement for solid waste planning.

Question 1 (d): Since passage of the 1984 amendments, how many waste-to-energy facilities have been permitted or contracted for at all levels of government which could restrict the flow of waste from recycling?

Answer: The resource recovery industry estimates that 15-20 facilities have been fully permitted since HSWA was enacted. Our data show that, currently, contracts for 40 facilities are being negotiated; contracts for an additional 55 facilities are expected to enter the negotiation process in the near term, and 3 facilities are now in the test-burn stage for a total of, at least, 98 new facilities expected to be on line in the near future. Our information on the criteria used by individual communities for selection of facility capacity is very limited. However, such criteria appear to be highly variable.

Question 1 (e): What steps are being taken to insure that the sizing of waste-to-energy facilities does not restrict future recycling?

Answer: EPA certainly views recovery of both materials and energy as socially, environmentally, and economically beneficial options for utilization of resources which would otherwise be wasted. As indicated by our State Planning Guidelines, tradeoffs must be made on State and local levels to determine which option or mix of options will be applied. Our State Planning Guidelines continue to provide recommendations and a mechanism, i.e., development of the State plan, for these tradeoffs. Appropriately, these actions are taken ot at the Federal level, but at State, local, and regional levels. As States submit plans to EPA, EPA will evaluate State responsiveness to the need to perform balancing between recycling and resource recovery.

## SUBTITLE D: LEVEL OF FUNDING

Question 2 (a) & (b): What has been the level of funding by year since 1980 for the provisions of the Solid Waste Disposal Act? What portion of that funding has been expended on the implementation of Subtitle D?

Answer:

Subtitle D vs Overall Funding
(Amounts are in Thousands)

| Fiscal Year | RCRA Funding* | Portion for Subtitle D* |
|---|---|---|
| 1980 | 65,609.0 | 32,133.0** |
| 1981 | 74,278.0 | 16,080.0** |
| 1982 | 73,643.0 | 322.0 |
| 1983 | 82,033.0 | 29.0 |
| 1984 | 88,308.0 | 0.0 |
| 1985 | 135,068.0 | 2,094.0 |
| 1986 | 141,636.0 | 2,981.8 |
| 1987 | 140,754.0 | 3,415.4 |
| 1988 | 140,851.0 | 3,487.9 |

*Includes Office of Solid Waste, Regional Implementation and Financial Assistance to States.

** Includes $27,908.6 in 1980 and $12,934.7 in 1981 for State grants.

## SUBTITLE D: RECYCLING

Question 3 (a): What steps has the Agency taken to facilitate the implementation of recycling programs since 1980?

Answer: Prior to 1980 the Agency funded 63 projects through an Urban Grants progam. These projects ranged from recycling demonstration programs to resource recovery demonstration programs. The Agency also conducted symposia, around the country, on a variety of topics related to recycling and resource recovery. The Agency also acted as a clearinghouse for information related to recycling and resource recovery.

In fiscal year 1980 funding of the Urban Grants program ceased. Although the Agency no longer funded these programs we did commit a small number of FTEs to wrap up the previously funded activities. These wrap up activities ceased by the middle of fiscal year 1981.

Question 3 (b) & (d): What are appropriate recycling goals for the Nation? What regulatory schmemes have been considered to achieve recycling goals?

Answer: The Agency encourages the use of recycling as part of an integrated approach to solid waste management. The Agency has never felt that mandatory recycling goals were either desirable or feasible. Local communities, regions and states must draw upon recycling, landfilling, resource recovery and waste minimization as a means of solving their unique solid waste management situation.

The Agency has endorsed the concept of bottle bills but has always maintained that each state should make its own decision on how a bottle bill fits into its solid waste management plan.

Question 3 (c): What public education efforts have been undertaken?

Answer: Prior to 1980 the Agency actively fostered development of recycling programs by sponsoring symposia. The Agency continued to sponsor symposia until halfway through fiscal year 1981. Since then the Agency has not conducted formal education efforts on recycling except for indirect support of recycling through speechs given at symposia and other public meetings.

Question 3 (e): How many technical assistance grants have been provided and for what amount by year?

[illegible] Since fiscal year 1980 the Agency has not hadfunds availa[illegible] technical assistance grants under the urban grants program.

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## SUBTITLE D: HAZARDOUS CONSTITUENTS IN PRODUCTS

Question 4 (a): Has the Agency investigated the hazardous constituents in municipal solid waste (MSW)?

Answer: EPA has some information on the hazardous constituents of some of the products in MSW, and has begun an analysis to fill in many of the gaps in 1988.

In 1986 EPA completed an analyses of the composition of MSW using several different analysis parameters. The first parameter was material in the municipal waste stream, including (but not limited to):

—ferrous metals

—nonferrous metals

—plastics

—rubber and leather

—inorganic wastes

A second parameter looked at products in the waste stream, including durable goods, nondurable goods, metal and nonmetal containers and packaging. A third parameter looked at trends in the organic/inorganic composition of MSW.

The study also identified additional categories of waste, some of which could include hazardous constituents, including used oil, nonhazardous industrial process waste, boiler residue, small quantity generator hazardous waste, and household hazardous waste.

EPA has begun an update of this work that focuses on collecting and analyzing available information on the hazardous constituents and available substitutes.

Question 4 (b) & (c): What hazardous constituents have been identified and in what products?

Answer: EPA has identified heavy metals such as lead in an array of products, including batteries, inks, paints and ceramics. Much work has been done on lead, which is one of the primary constituents of concern in MSW. EPA has also identified organic constituents in plastic products and household chemicals. However, our information is not complete. In 1988, we will collect available information on the constituents in many products and available substitutes.

Question 4 (d): What legal authority has the agency considered using to achieve these reductions?

Answer: EPA has begun looking at how we could use TSCA section 6 authority to affect the amount of lead that is used in products or to affect the amount of lead containing products that actually go into municipal waste landfills. This approach could also be used for other constituents. We are also looking at the advisability of using TSCA sec. 6 to implement take-back systems for recycable products such as used oil and batteries. TSCA can also be used to require manufacturing process changes if those changes are needed to eliminate or reduce constituents of concern in the product. Finally, although we have not yet looked into it, TSCA may provide a useful mechanism to strengthen product labelling with regard to proper disposal and/or constituents in the product. In the case of pesticide products, FIFRA may be used to implement labelling affecting disposal or limiting contaminant concentrations. We are at the beginning stages of this effort and will keep the committee advised of the various approaches that might be used.

Question 4 (e): What problems are posed for implementing a hazardous constituent control program though the use of these authorities?

Answer: Under TSCA EPA must show that the manufacture, processing, distribution, use or disposal of a product will cause unreasonable risk to human health or the environment before a control action can be taken. Unreasonable risk is determined by weighing the risks of the current situation against the costs of controls. Risks and costs must consider the product before and after controls as well as the comparative risks and costs of substitute products.

One potential difficulty with TSCA is the section 9 requirements regarding the relationship of TSCA to other Federal laws. These section 9 findings can require referals to other agencies.

Another potential problems is the set of hearing requirements laid out in section 6(b) and 6(c) of TSCA.

## SUBTITLE D: SECTION 4010(b) STUDY

Question 5 (a): What is the status of the Subtitle D Report to Congress?

Answer: The draft Report is now being reviewed by Agency management. Our current schedule calls for issuance of the final report in early February, 1988. Thus, the report will be available at the same time the proposed revisions to the Subtitle D Criteria are available for public comment.

Question 5 (b): What are the major findings of the Subtitle D study?

Answer: Some of the major findings of the draft report include:

- State Subtitle D programs are generally inadequate. The report will include suggestions to improve enforcement and better long term planning.
- The Subtitle D universe is large and diverse with the large majority being industrial and mining wastes. Of the 226,000 Subtitle D facilities identified, about 86 percent are surface impoundments, 8 percent are land application units, 6 percent are landfills, and 2 percent are industrial waste piles.
- The landfilling of most municipal solid waste has created capacity shortages, with nearly 70 percent of all municipal landfills expected to close within 15 years.

Question 5 (c): Provide all draft documents, internal memoranda and correspondence between the Office of Solid Waste, and the Office of Policy Planning and Evaluation and other Agency Offices or correspondence with other executive branch agencies with respect to the report and revisions to the criteria which have been proposed to implement the findings of the report.

Answer: See Attachment #1

## SUBTITLE D: CRITERIA REVISIONS

Question 6 (a): What is the current status of the Criteria Revisions and will you meet the March 31, 1988 deadline?

Answer: The current schedule for the revisions to the Subtitle D Criteria calls for the revisions to be proposed in February, 1988 and finalized in November 1988. We plan to issue the Subtitle D Report to Congress at the time we propose the Criteria revisions. Thus, the Report will be available for consideration as the public comments on the proposal.

The Agency plans to propose the industrial facility piece of the criteria revisions in FY89.

Question 6 (b): Has the Agency considered different implementation schemes such as performance standards or technology standards?

Answer: The Agency has considered two basic approaches to the Criteria revisions. One approach matches specific requirements to categories of locations. The second approach considered (and the one chosen for proposal) is a performance standard. The Agency will provide written technical guidance on matching design requirements to locations so that states can use this guidance to help implement the performance standards.

Question 6 (c): What are the manpower needs, cost, and the level of public health and environmental control provided by each scheme.

Answer: A performance standard was chosen over the categorical approach because it was a superior option from the standpoint of state flexibility. It should also reduce regulatory cost to some extent. The performance standard gives the States more flexibility in how to implement the rules. The site-specific features of each facility can be taken into account by the State in developing the facility permit. The overall cost to the regulated community should be less with a performance standard than the categorical approach becuase each site is considered seperately rather than as a part of a category; there is greater opportunity for tailored designs. The use of performance standards provides essentially the same protection of human health and the environment as would have been provided by the categorical rule. Both approaches require corrective action if releases occur which exceed health/environmental based levels.

Question 6 (d): How will the Agency determine if this level of protection is being achieved?

Answer: The criteria require appropriate monitoring requirements. These monitoring requirements will ensure that any releases are detected early and corrective action is undertaken.

## SUBTITLE D: PROCUREMENT GUIDELINES

Question 7 (a) & (b): The Administrator is required to prepare procurement guidelines for the use of procuring agencies in Subtitle F. a) What guidelines have been developed? b) When will additional guidelines be proposed and for what items?

Answer: Procurement guidelines have been developed and published for fly ash used in cement and concrete and for paper and paper products made from recycled materials. We also proposed this past fall to amend the paper guidelines by setting minimum content standards. Additionally, we have proposed procurement guidelines for asphalt made from recycled tires and for re-refined lubricating oils. These both should be finalized within the coming year. The Agency is developing guidelines for retread tires.

Question 7 (c): How are procurement guidelines being implemented?

Answer: Completed procurement guidelines are published in the Federal Register. During their development there is interchange with the appropriate federal agencies that would be affected by the individual guideline. Also the appropriate trade or industry association becomes involved (or may even provide the impetus for a particular guideline). There is no mechanism in place to followup with affected agencies to assure their implementation of the guideline. Rather, the market place itself will provide that assurance. EPA is available to assist procuring agencies in carrying out the requirements of the guidelines program.

Question 7 (d): What have been the effects of these guidelines on assuring continued markets for recycled goods?

Answer: EPA has conducted no analyses or surveys to determine the effects of the guidelines on assuring continued markets for recycled goods. Again, the market place may provide an appropriate incentive, given the ever increasing cost of waste disposal.

## SUBTITLE D: MUNICIPAL WASTE COMBUSTION ASH

Question 8 (a): What hazardous constituents have been identified in fly ash?

Answer: The data on ash composition which we currently have are limited to a very small number of facilities. However, we are concerned about the concentrations of lead and cadmium in the ash, particularly in the fly ash. We believe, at this point, that the levels of dioxins we've seen are not dangerous. However, we are sensitive to the dioxin question and fully intend to recommend an adequate level of control and protection.

Question 8 (b) & (c): How often does fly ash, bottom ash and combined ash fail the EP toxicity test? Has the Agency developed guidelines for the handling and disposal of ash?

Answer: We have such data only for individual samples and infrequently composited samples; that is, we've seen no EP data generated by a sampling program that would be considered to be statistically representative for this heterogenous material. For these limited samples, the results indicate that fly ash fails the EP toxicity test for approximately 95% of the samples, bottom ash approximately 40% and combined ash fails at approximately the same rate as the bottom ash. We are, in fact, currently crafting interim guidance for proper management of these ashes.

Question 8 (d): What is the basis for the development of these guidelines?

Answer: While we know of no studies indicating adverse human health or environmental effects resulting from exposure to these ashes, we are concerned that there may exist the potential for such effects. We are developing our guidance by targeting the constituents of the ash that lead us to that concern, and by identifying the exposure pathways we believe are most susceptible, that is by fugitive dust emissions and ground-water contamination.

Question (e): Are different guidelines needed for fly ash, bottom ash and combined ash?

Answer: Our guidance will likely make recommendations specific to fly ash if handled separately, and to bottom and/or combined ash. Generally, the design standards are more stringent for disposal facilities that would handle fly ash alone.

Question 8 (f): What type of containment designs will be necessary to adequately protect public health and the environment?

Answer: EPA believes that landfilling of MWC ash with municipal solid waste or monofilling can be protective of human health and the environment. Monofills are waste piles or landfills used to store or dispose of a single type of waste. Protectiveness can be achieved through use of appropriately designed controls, such as run-on and runoff systems, leachate collection and removal system(s), liners, and a final cover. Operational controls such as fugutive dust controls are also appropriate. We believe that in most locations, a composite or double liner system will be necessary to be protective of human health and the environment. Our preliminary thinking on disposal liner scenarios are explained in more detail in a later answer.

Question 8 (g): What type of testing will be necessary?

Answer: The Agency is still considering what types of ash characterization and/or leachate testing may be appropriate.

Question 8 (h): Has EPA considered the use of monofills?

Answer: Yes, we are currently working on the development of interim technical guidance for proper handling of MWC ash that covers storage and disposal in monofills, as well as for co-disposal in a landfill with municipal solid waste. Our current position is that monofilling is the preferred method of storage or disposal of bottom ash or combined (fly and bottom ash) but realize that in some cases co-disposal may be the best available option. For fly ash alone we are looking at recommending that monofills only be used for storage or disposal. The monofill offers the advantage of 1) removing the potential for increasing the mobility of heavy metals contained in ash through acid production from decomposing organic waste; 2) increased potential for future recovery of ash for recycling or reuse: and 3) special handling or special access control requirements can be instituted without impacting other landfill operations.

Question 8 (i: What types of design criteria will be necesary for the use of monofills in order to protect human health and the environment?

Answer: Our current thinking for new units is that fly ash, if handled separately, should be stored or disposed of only in a monofill with the use of a double liner system that utilizes a leachate collection and removal system above and between the liners.

Current data indicates that combined (fly and bottom) ash and bottom ash are similar in terms of chemical characteristics; therefore, the same design if likely to be appropriate for either type of ash. A leachate collection and removal system above a overlying a compacted low-permeability soil layer) is believed to be appropriate for a monofill that accepts only combined or bottom ash.

A MWC ash monofill, like any landfill, should also have controls such as run-on/runoff, groundwater monitoring and corrective action (except that analysis would likely be more limited for monofills), closure/post-closure care, and financial responsibility.

Question 8 (j): Has EPA considered what types and in what circumstances the various types of ash may need to be treated?

Answer: A number of research initiatives are underway, examining treatment as a preprocess for subsequent disposal and also as an intermediary step in reuse of the ash (primarily as an aggregate substitute in construction materials). Because various technologies have proven quite successful in reducing the mobility, volume and/or toxicity of industrial hazardous wastes, EPA is confident that at least a few of these treatment methods could be used with similar success for MWC ash.

Question 8 (k): Does the Agency expect fly ash to contain higher levels of hazardous waste in the future?

Answer: Currently, there are no data to suggest that higher concentrations of such substances will occur in the ashes. However, the volume of fly ash is expected to increases as more efficient air pollution control devices are installed. These devices may lead to increased consentrations of problem constituents however, we do not have data to test this hypothesis. Also, we are beginning to investigate the possible effects of such technologies on the character of the fly ash.

Question 8 (l): It has been alleged that a positive benefit is achieved through combining bottom ash and fly ash. Is this benefit achieved through dilution or is there a chemical transformation that takes place?

Answer: Currently, we do not believe the data indicate that an actual chemical reaction is occurring when fly and bottom ash solids are mixed. However, we do believe that acid-base neutralization is occurring beteen the fly ash leachate and the bottom ash leachate in a landfill in those cases where the fly ash leachate is, by itself, acidic. By combining the two ashes, we feel that some pH control can be achieved.

Question 8 (m): What is the basis for this determination?

Answer: We have based our determination of what may actually be occurring when fly and bottom ashes are mixed on, again, a limited data set. This data set includes basic science knowledge and a small number of lab analyses and field observations. For example, one can look at the composition of a fly ash sample and infer the leachate pH of such a sample. The same can be done for a bottom ash sample. We know that fly ash represents some 10% by volume of a typical combined ash load. Therefore, the pH of the dominant ash leachate (derived from the bottom ash), will not only neutralize the fly ash leachate, but overwhelm it to the point that buffering occurs. Finally, when we look at the composition of a given incinerator's fly ash, the composition of its bottom ash, and the composition of combined ash from this incinerator, we do not see indications of species transformation.

Question 8 (n): Will the Agency's proposed disposal options be contingent upon testing or will standards be specified regardless of the testing?

Answer: The appropriateness of testing is still being investigated by our staff.

Question 8 (o): Did the Agency consider ash disposal in developing the revised D criteria?

Answer: When we began investigating MWC ash we did so within a Subtitle D framework and the efforts are still closely related. We have developed the revised D Criteria and a MWC ash management strategy almost in tandem and we believe that many pieces of the D Criteria have appropriate application for ash management. However, as our database developed, we became convinced that in certain aspects ash management would require more stringent standards than these contained in the D Criteria.

Question 8 (p): For any questions addressed above concerning the disposal of ash which does not have sufficient data, when will that data be available?

Answer: We currently have underway several research efforts which will provide additional data within the next 6-9 months. We are surveying all on-line MWC facilities to collect information on current ash management practices, volumes, and disposal facility design and operation. We are looking at a young ash monofill that has a liner and leachate collection system. We have an ash stabilization project underway. We are going to investigate in detail a half dozen or so additional incinerators and their disposal facilities. We are sending staff to Europe to expand our field investigations (as you may know, several of the European countries have been monofilling ash for over 10 years). We are taking a look at constituents of concern in products that wind up in municipal refuse, with lead as a target constituent. Of course, our data collection from the literature is continuing. Finally, a supplemental report to our ash report that was just released is due to be issued early next year.

For the longer term, we are developing a ground-water monitoring scheme tailored to ash monofills. In connection with that effort, we will be collecting ground-water quality data specifically for lead, cadmium, and dioxin presence. We are also expanding the scope of our research efforts to include investigation of technologies for reuse of the ash. We have been tracking such a project at the State University of New York and expect to involve ourselves more actively in that work very soon.

Question 8 (q): When does EPA expect to have sufficient data to issue a guidance for ash disposal?

Answer: Although data collection and analysis activities are still underway, EPA believes that it has sufficient data at the present time to develop interim technical guidance for proper handling and disposal. Minor revisions of this guidance may be necessary as more data become available on such topics as the environmental-transport and fate of ash contaminants, and long-term trends in leachate quality at the disposal site.

EPA has developed a number of technical guidance documents concerned with the handling and disposal of both solid and liquid hazardous wastes. In doing so, the Agency has gained an extensive knowledge and understanding of both the intended and actual performance of landfill control technologies such as liners and leachate collection/removal systems. By drawing on this knowledge and experience, EPA will be able to develop appropriate levels of control for MWC ash in the interim guidance that will be protective of human health and the environment.

Question 8 (r): Will any decisions be made concerning the handling of ash prior to development of this guidance.

Answer: As noted earlier, we are currently developing interim technical guidance for the proper handling and disposal of MWC ash. For the transitional period, we are developing recommendations for existing facilities that should reduce the potential for improper disposal of MWC ash.

Question 8 (s): What assurances are there that either the guidelines or implmentation of the guidelines will not result in future CERCLA releases or other releases requiring corrective action?

Answer: The guidelines for handling and disposal of MWC ash under development by EPA will ensure both short- and long-term protection of human health and the environment. A major component of this protectiveness are engineered controls designed to minimize as much as possible the potential for future CERCLA releases or other releases requiring corrective action. These controls are based on various technologies and practices that are being utilized successfully in the RCRA program. The performance of these control technologies has been well demonstrated in the short term and is expected to exceed long-term objectives as well. Consequently, EPA is confident that the proposed ash management practices will be protective both now and in the future.

## SUBTITLE D: CERCLA

Question 9 (a): How many sites on the National Priorities List are municipal landfills? Please provide a list of the sites and their location.

Answer: To date there are 158 municipal landfills that are either proposed or on the National Priorities List. A list of the sites and their locations are on the follow four pages.

Answer To 7(2)

## FINAL AND PROPOSED MUNICIPAL LANDFILLS
July 1987

| EPA Reg. | State | Site Name | Location | NPL Status |
|---|---|---|---|---|
| 01 | CT | Beacon Heights Landfill | Beacon Falls | Final |
| 01 | CT | Old Southington Landfill | Southington | Final |
| 01 | MA | Charles-George Reclamation Lndfll | Tyngsborough | Final |
| *01 | MA | Haverhill Municipal Landfill | Haverhill | Final |
| 01 | MA | Iron Horse Park | Billerica | Final |
| 01 | MA | New Bedford Site | New Bedford | Final |
| *01 | MA | Shpack Landfill | Norton/Attleboro | Final |
| *01 | ME | Winthrop Landfill | Winthrop | Final |
| 01 | NH | Auburn Road Landfill | Londonderry | Final |
| 01 | NH | Coakley Landfill | North Hampton | Final |
| *01 | NH | Dover Municipal Landfill | Dover | Final |
| *01 | NH | Somersworth Sanitary Landfill | Somersworth | Final |
| 01 | RI | Central Landfill | Johnston | Final |
| 01 | RI | Davis (GSR) Landfill | Glocester | Final |
| 01 | RI | L&RR, Inc. | North Smithfield | Final |
| 01 | VT | Old Springfield Landfill | Springfield | Final |
| *02 | NJ | Brick Township Landfill | Brick Township | Final |
| 02 | NJ | Combe Fill North Landfill | Mount Olive Twp | Final |
| 02 | NJ | Combe Fill South Landfill | Chester Township | Final |
| 02 | NJ | Delilah Road | Egg Harbor Township | Final |
| 02 | NJ | Florence Land Recontouring Lndfll | Florence Township | Final |
| 02 | NJ | Fort Dix (Landfill Site) | Pemberton Township | Final |
| 02 | NJ | Helen Kramer Landfill | Mantua Township | Final |
| 02 | NJ | Horstmann's Dump | East Hanover | Proposed |
| *02 | NJ | Jackson Township Landfill | Jackson Township | Final |
| 02 | NJ | Kin-Buc Landfill | Edison Township | Final |
| 02 | NJ | Landfill & Development Co. | Mount Holly | Final |
| 02 | NJ | Lipari Landfill | Pitman | Final |
| 02 | NJ | M&T Delisa Landfill | Asbury Park | Final |
| *02 | NJ | Mannheim Avenue Dump | Galloway Township | Final |
| *02 | NJ | Monroe Township Landfill | Monroe Township | Final |
| 02 | NJ | Naval Air Engineering Center | Lakehurst | Final |
| *02 | NJ | Sayreville Landfill | Sayreville | Final |
| *02 | NJ | Sharkey Landfill | Parsippany/Troy Hls | Final |
| *02 | NJ | Upper Deerfield Township San Lndf | Upper Deerfield Twp | Final |
| *02 | NY | Batavia Landfill | Batavia | Final |
| 02 | NY | Colesville Municipal Landfill | Town of Colesville | Final |
| 02 | NY | [illegible]klin Dumps | Conklin | Proposed |
| *02 | NY | Cortese Landfill | Vil of Narrowsburg | Final |
| *02 | NY | Islip Municipal Sanitary Landfill | Islip | Proposed |
| *02 | NY | Johnstown City Landfill | Town of Johnstown | Final |
| *02 | NY | Niagara County Refuse | Wheatfield | Final |
| *02 | NY | North Sea Municipal Landfill | North Sea | Final |
| *02 | NY | Old Bethpage Landfill | Oyster Bay | Final |
| *02 | NY | Port Washington Landfill | Port Washington | Final |
| 02 | NY | Ramapo Landfill | Ramapo | Final |
| 02 | NY | Sarney Farm | Amenia | Final |
| *02 | NY | Syosset Landfill | Oyster Bay | Final |

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## FINAL AND PROPOSED MUNICIPAL LANDFILLS
July 1987

| EPA Reg. | State | Site Name | Location | NPL Status |
|---|---|---|---|---|
| 02 | NY | Volney Municipal Landfill | Town of Volney | Final |
| 02 | NY | Warwick Landfill | Warwick | Proposed |
| *02 | PR | Barceloneta Landfill | Florida Afuera | Final |
| *02 | PR | Juncos Landfill | Juncos | Final |
| 03 | DE | Army Creek Landfill | New Castle County | Final |
| 03 | DE | Delaware Sand & Gravel Landfill | New Castle County | Final |
| 03 | DE | Pigeon Point Landfill | New Castle | Proposed |
| 03 | DE | Tybouts Corner Landfill | New Castle County | Final |
| 03 | DE | Wildcat Landfill | Dover | Final |
| *03 | MD | Woodlawn County Landfill | Woodlawn | Final |
| 03 | PA | Blosenski Landfill | West Caln Township | Final |
| 03 | PA | Delta Quarries/Stotler Landfill | Antis/Logan Twps | Proposed |
| 03 | PA | Dorney Road Landfill | Upper Macungie Twp | Final |
| 03 | PA | East Mount Zion | Springettsbury Twp | Final |
| 03 | PA | Keystone Sanitation Landfill | Union Township | Final |
| 03 | PA | Lackawanna Refuse | Old Forge Borough | Final |
| 03 | PA | Modern Sanitation Landfill | Lower Windsor Twp | Final |
| 03 | PA | Moyers Landfill | Eagleville | Final |
| 03 | PA | Old City of York Landfill | Seven Valleys | Final |
| 03 | PA | Reeser's Landfill | Upper Macungie Twp | Final |
| *03 | PA | River Road Lf/Waste Mngmnt, Inc. | Hermitage | Proposed |
| 03 | PA | Walsh Landfill | Honeybrook Township | Final |
| 03 | PA | York County Solid Waste/Refuse Lf | Hopewell Township | Final |
| *03 | VA | Dixie Caverns County Landfill | Salem | Proposed |
| 03 | VA | First Piedmont Quarry (Route 719) | Pittsylvania County | Final |
| 03 | VA | Love's Container Services Lndfll | Buckingham County | Proposed |
| 04 | FL | Davie Landfill | Davie | Final |
| 04 | FL | Hipps Road Landfill | Duval County | Final |
| *04 | FL | Munisport Landfill | North Miami | Final |
| *04 | FL | NW 58th Street Landfill | Hialeah | Final |
| *04 | FL | Pickettville Road Landfill | Jacksonville | Final |
| 04 | FL | Taylor Road Landfill | Seffner | Final |
| 04 | GA | Powersville Site | Peach County | Final |
| 04 | GA | Robins AFB (Lndfll #4/Sludge Lag) | Houston County | Final |
| 04 | KY | Lee's Lane Landfill | Louisville | Final |
| 04 | KY | Newport Dump | Newport | Final |
| 04 | SC | Medley Farm Drum Dump | Gaffney | Proposed |
| 04 | TN | Amnicola Dump | Chattanooga | Final |
| 04 | TN | North Hollywood Dump | Memphis | Final |
| *05 | IL | Belvidere Municipal Landfill | Belvidere | Final |
| 05 | IL | H.O.D. Landfill | Antioch | Proposed |
| 05 | IL | Savanna Army Depot Activity | Savanna | Proposed |
| 05 | IL | Tri-County Lf/Waste Mgmt Illinois | South Elgin | Proposed |
| *05 | IN | Lemon Lane Landfill | Bloomington | Final |
| 05 | IN | Marion (Bragg) Dump | Marion | Final |
| 05 | IN | McCarty's Bald Knob Landfill | Mt. Vernon | Proposed |
| 05 | IN | Neal's Landfill (Bloomington) | Bloomington | Final |
| 05 | IN | Southside Sanitary Landfill | Indianapolis | Proposed |

* DENOTES MUNICIPALLY OWNED

## FINAL AND PROPOSED MUNICIPAL LANDFILLS
July 1987

| EPA Reg. | State | Site Name | Location | NPL Status |
|---|---|---|---|---|
| *05 | MI | Ionia City Landfill | Ionia | Final |
| 05 | MI | K&L Avenue Landfill | Oshtemo Township | Final |
| *05 | MI | Kentwood Landfill | Kentwood | Final |
| 05 | MI | Mason County Landfill | Pere Marquette Twp | Final |
| 05 | MI | Michigan Disposal(Cork Street Lf) | Kalamazoo | Proposed |
| 05 | MI | SCA Independent Landfill | Muskegon Heights | Final |
| *05 | MI | South Macomb Disposal (Lf 9 & 9A) | Macomb Township | Final |
| 05 | MI | Southwest Ottawa County Landfill | Park Township | Final |
| 05 | MI | Sparta Landfill | Sparta Township | Final |
| 05 | MN | East Bethel Demolition Landfill | East Bethel Township | Final |
| 05 | MN | Freeway Sanitary Landfill | Burnsville | Final |
| 05 | MN | Kummer Sanitary Landfill | Bemidji | Final |
| 05 | MN | LaGrand Sanitary Landfill | LaGrand Township | Final |
| 05 | MN | Oak Grove Sanitary Landfill | Oak Grove Township | Final |
| *05 | MN | Olmsted County Sanitary Landfill | Oronoco | Final |
| 05 | MN | Pine Bend Sanitary Landfill | Dakota County | Final |
| 05 | MN | St. Augusta San Lndfll/Engen Dump | St. Augusta Township | Final |
| *05 | MN | Washington County Landfill | Lake Elmo | Final |
| 05 | MN | Waste Disposal Engineering | Andover | Final |
| *05 | MN | Windom Dump | Windom | Final |
| 05 | OH | Bowers Landfill | Circleville | Final |
| 05 | OH | Buckeye Reclamation | St. Clairsville | Final |
| *05 | OH | Coshocton Landfill | Franklin Township | Final |
| 05 | OH | Fultz Landfill | Jackson Township | Final |
| 05 | OH | Industrial Excess Landfill | Uniontown | Final |
| 05 | OH | Miami County Incinerator | Troy | Final |
| 05 | OH | New Lyme Landfill | New Lyme | Final |
| 05 | OH | Sanitary Landfill Co. (IWD) | Dayton | Final |
| *05 | WI | Algoma Municipal Landfill | Algoma | Final |
| 05 | WI | City Disposal Corp. Landfill | Dunn | Final |
| *05 | WI | Janesville Old Landfill | Janesville | Final |
| 05 | WI | Lauer I Sanitary Landfill | Menomonee Falls | Final |
| 05 | WI | Lemberger Landfill, Inc. | Whitelaw | Final |
| 05 | WI | Muskego Sanitary Landfill | Muskego | Final |
| 05 | WI | Omega Hills North Landfill | Germantown | Final |
| *05 | WI | Onalaska Municipal Landfill | Onalaska | Final |
| 05 | WI | [illegible]ickler Landfill | Spencer | Final |
| *05 | WI | [illegible]oughton City Landfill | Stoughton | Final |
| *05 | WI | Tomah Armory | Tomah | Final |
| *05 | WI | Tomah Fairgrounds | Tomah | Final |
| *05 | WI | Tomah Municipal Sanitary Landfill | Tomah | Proposed |
| 06 | AR | Industrial Waste Control | Fort Smith | Final |
| *06 | AR | Jacksonville Municipal Landfill | Jacksonville | Final |
| *06 | AR | Rogers Road Municipal Landfill | Jacksonville | Final |
| 06 | OK | Tenth Street Dump/Junkyard | Oklahoma City | Final |
| 07 | IA | Red Oak City Landfill | Red Oak | Proposed |
| *07 | IA | Shaw Avenue Dump | Charles City | Final |
| *07 | MO | Fulbright Landfill | Springfield | Final |

* DENOTES MUNICIPALLY OWNED

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## FINAL AND PROPOSED MUNICIPAL LANDFILLS
July 1987

| EPA Reg. | State | Site Name | Location | NPL Status |
|---|---|---|---|---|
| 07 | MO | Minker/Stout/Romaine Creek | Imperial | Final |
| *08 | CO | Lowry Landfill | Arapahoe County | Final |
| 08 | CO | Marshall Landfill | Boulder County | Final |
| 08 | MT | Silver Bow Creek/Butte Area | Sil Bow/Deer Lodge | Final |
| 09 | AZ | Hassayampa Landfill | Hassayampa | Final |
| *09 | AZ | Nineteenth Avenue Landfill | Phoenix | Final |
| *09 | CA | South Bay Asbestos Area | Alviso | Final |
| 09 | GU | Ordot Landfill | Guam | Final |
| *10 | WA | Colbert Landfill | Colbert | Final |
| 10 | WA | Greenacres Landfill | Spokane County | Final |
| 10 | WA | Hidden Valley Lf (Thun Field) | Pierce County | Proposed |
| 10 | WA | Mica Landfill | Mica | Final |
| *10 | WA | Midway Landfill | Kent | Final |
| *10 | WA | Northside Landfill | Spokane | Final |

[illegible] = 58

Question 9 (b): What is the Agency's policy with respect to listing municipal landfill sites on the NPL?

Answer: On the next two pages is a copy of the August 21st, 1987 memo from Henry Longest II, Director of the Office of Emeregency and Remedial Response that covers the Agency's policy on listing municipal landfills on the NPL.

In deciding whether to defer CERCLA listing of a municipal landfill due to the presence of RCRA Subtitle D Federal criteria, EPA would consider the effectiveness of the appropriate State program in implementing the Federal criteria.

Answer To 1(b)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

AUG 21 1987

OFFICE OF
SOLID WASTE AND EMERGENCY RESPON

**MEMORANDUM**

SUBJECT: Listing Municipal Landfills on the NPL

FROM: Henry L. Longest II, Director
Office of Emergency and Remedial Response

TO: Director, Waste Management Division
Regions I, IV, V, VII, and VIII
Director, Emergency and Remedial Response Division
Region II
Director, Hazardous Waste Management Division
Region III and VI
Director, Toxics and Waste Management Division
Region IX
Director, Hazardous Waste Division
Region X

This memo is a followup to my October 24, 1986, memo (see attached) regarding listing municipal landfills on the National Priorities List (NPL). In that memo, I deferred listing municipal landfills on Update #6 that did not have a clear record of accepting hazardous waste. I believe it is important to understand the intent of that memo and clarify procedures for submission of municipal landfills in the next proposed update.

At the time I issued the October 1986 memo, it appeared that municipal landfills were being submitted by the Regions in increasing numbers. I wanted to ensure that these municipal landfill sites were appropriate for Superfund remedial action. Therefore, as a management tool, I required a clear record of hazardous waste disposal for sites to be considered eligible for the Update #6 proposed rulemaking.

A[illegible] are aware, at the time I issued the October 1986 memo, the Ag[illegible] had recently promulgated the RCRA Subtitle C deferred NPL listing policy (51 FR 21054). The Office of Solid Waste (OSW) will soon propose revisions to the Subtitle D Criteria for Classification of Solid Waste Disposal Facilities and Practices set forth in 40 CFR Part 258. This rule will propose specific requirements for new and existing municipal solid

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waste landfills, including ground water monitoring and corrective action for these facilities. Municipal solid waste landfills that close prior to the effective date of the rule are proposed to be excluded from the rule. I viewed the RCRA Subtitle D authority for municipal landfills as a possible corollary to the RCRA Subtitle C deferred NPL listing policy.

It was our experience with Update #6 that the Regions had difficulty documenting hazardous waste disposal at several landfills even though there may have been an indication that hazardous substances were being released from the landfill. It was not my intention in the October 1986 memo to defer from placement on the NPL a serious environmental threat, e.g., a municipal landfill with a documented release of hazardous waste or indication of the presence of hazardous waste. Rather my intention was to ensure that the Superfund program concentrate on those sites that cannot be addressed sufficiently through another authority.

I continue to believe it is important to ensure that the Superfund program focuses on the cleanup of hazardous waste sites that cannot be addressed sufficiently by another authority. At the same time, however, I will not place restrictions that impede the listing of serious public health or environmental threats. Therefore, you may submit municipal landfills that score above 28.50 for listing on the NPL without a record of hazardous waste disposal. I request, however, that you submit a cover letter with each municipal landfill HRS package. This letter should discuss the site's history to indicate the types of materials disposed at the site, any monitoring data indicating a release from the site, and an assessment of the environmental and public health risks at the site based on information contained in the preliminary assessment, site inspection, and HRS package. I believe this approach will help us make better environmental management decisions at municipal landfill sites.

We will closely follow the Subtitle D rule and will develop an appropriate policy for municipal landfills prior to scoring sites under the revised HRS.

## SUBTITLE D: CERCLA

Question 9 (c): What is the Agency's policy on requiring the use of RCRA corrective action at municipal landfills?

Answer: To the extent that RCRA Subtitle D regulations and the regulations of the implementing state do not provide sufficient corrective action at specific facilities, such facilities could be considered for listing on the NPL. The revised landfill criteria will have corrective action provisions for municipal solid waste landfills that continue to accept small quantity generator and household hazardous waste after promulgation of the final rule. (All municipal solid waste land fills will be covered by the upcoming critieria revisions.)

Question 9 (d): Has the Agency any comprehensive strategy to investigate the entire universe of municipal landfills to determine which would require remedial or corrective action?

Answer: States should evaluate all operating facilities as they issue permits. For closed facilities, states, the public, or EPA can initiate actions to refer them to CERCLIS for screening for listing on the NPL.

Question 9 (e), (f) & (g): e) What is the range of costs to a local community for an action under CERCLA versus an action under RCRA? f) What monetary and manpower resources does the Agency have to address this problem and under what program? g) What are the costs to a local community under CERCLA, RCRA?

Answer: Of 951 sites on the NPL 158 are municipal landfills. Response activity is undertaken at these sites either under responsible party lead or Trust Fund lead. To date, responsible parties have initiated activity at 93 sites. For the Fund 85.8 million dollars has been expended for remedial investigations/feasibility studies, 15.9 million dollars for remedial designs, and 51.5 million for remedial actions (the clean up facet of the program). In most cases under Trust Fund activities, the Federal share is 90 percent and the state share is 10 percent for remedial action funding. However, where the municipal landfill is owned by a state or local entity the Federal/state cost share is 50/50 for remedial action.

22 municipal landfill sites, and the Fund has initiated action at 53 municipal landfill sites

at municipal landfills

With regard to the use of RCRA section 7003 to compel corrective action at municipal landfills, in most cases that authority would be used in conjunction with CERCLA authorities.

Question 9 (h): How is the Agency using information gained from investigating releases from municipal landfills in developing new criteria?

Answer: The Agency is gaining valuable technical information from the various types of investigations in both the RCRA and CERCLA programs. This information coupled with other appropriate sources of data, will be instrumental in revising the criteria. For example, data on releases from municipal landfills has lead up to a tiered scheme for ground-water monitoring through the use of indicator parameters.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460 [redacted]

**ATTACHMENT #1**

- 4

[illegible]

MEMORANDUM

SUBJECT: Transmittal of Draft Subtitle D Report to Congress

FROM: J. Winston Porter
Assistant Administrator for Solid Waste and Emergency Response

TO: Jack Campbell, Acting Assistant Administrator
Office of Policy, Planning and Evaluation

Attached is the draft Subtitle D Report to Congress. This report is required by Section 4010 of the Resource Conservation and Recovery Act (RCRA), as amended by the 1984 Hazardous and Solid Waste Amendments (HSWA). This section requires EPA to conduct a study to determine whether the Subtitle D Criteria (40 CFR Part 257) are adequate to protect human health and the environment from ground-water contamination. HSWA also specifically requires that recommendations be made with respect to any additional enforcement authorities deemed necessary by EPA. This report to Congress was due on November 8, 1987.

We have worked closely with the work group in developing this draft report. I request that you submit this report to the Steering Committee for review. Twenty-six (26) copies of the report are attached for this purpose.

Attachment

ENVIRONMENTAL PROTECTION AGENCY
## CLEARANCE RECORD

| | | |
|---|---|---|
| SUBJECT<br>40 CFR Parts 257 and 258. Solid Waste Disposal Facility Criteria | TYPE OF DOCUMENT<br>Federal Register | [illegible]<br>Proposed Rule |
| | NAME OF PERSON MOST FAMILIAR WITH ATTACHMENT<br>Mike Flynn | |
| | ROOM AND BUILDING NUMBER | PHONE NO.<br>382-4489 |

EXPLANATION (Changes in issuances, reports, and forms covered or concluded)

THREE WEEK REVIEW PERIOD

FRL# 3227-1

SAR# 2224

### ORIGINATING OFFICE CLEARANCE

| NAME, TITLE, AND ORGANIZATION | SIGNATURE | DATE |
|---|---|---|
| J. Winston Porter, Assistant Administrator for Solid Waste and Emergency Response | see attached action memo | 6/29/87 |

DEADLINE DATE
7/20/87

NOTE TO ALL CLEARING OFFICES - THIS DEADLINE DATE HAS BEEN ESTABLISHED FOR RETURN OF ALL CONCURRENCES OR COMMENTS. IF NOT RECEIVED BY THIS DATE YOUR CONCURRENCE MAY BE ASSUMED, UNLESS AN EXTENSION HAS BEEN REQUESTED AND APPROVED

### CLEARANCE ROUTING

| ORGANIZATION OFFICE/SYMBOL | CONCUR | | DO NOT CONCUR COMMENT ATTACHED | SIGNATURE | DATE | *COMMENT ACCEPTED CHANGE MADE |
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AFTER APPROVAL RETURN TO: Dave Levy (PM-223) 415 West Tower 38247206

EPA Form 1300-2 (6-71) *FOR ORIGINATOR USE ONLY

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
PESTICIDES AND TOXIC SUBSTANCES

MEMORANDUM

SUBJECT: Red Border Review of 40 CFR Parts 257
and 258 Solid Waste Disposal
Facility Criteria (Proposed Rule)

FROM: John A. Moore
Assistant Administrator
for Pesticides and Toxic Substances (TS-788)

TO: J. Winston Porter
Assistant Administrator
for Solid Waste and Emergency Response (WH-562A)

OPTS concurs with the Proposed Rule for Solid Waste Disposal Facilities with the following comments.

OPTS appreciates OSWER incorporating language on "regulated PCB waste" into the preamble of §258.50. However, OPTS recommends a minor alteration to the text (p. 52, par. 1) of the proposed rule preamble. The second sentence appears to single out automobile shredders and their processing of small capacitors as the major source of PCB-contaminated residuals. In fact, the problem is much broader, and materials other than small capacitors may be contributing to the generation of these PCB wastes. Therefore, this sentence should be revised to state more generally that:

> "Likewise, recycling facilities may generate regulated PCB wastes in the course of processing equipment containing small capacitors and other PCB-containing materials; this equipment may release their PCB content to the facilities' wastes when processed."

Also, the regulatory text in §258.50(a) and §258.50(b) does not reflect the clarification of "regulated PCB waste" provided in the preamble. In other words, §258.50(a) should be revised to include an express reference to "regulated PCB wastes", and §258.50(b) should be revised to include a definition for "regulated PCB waste", referring to those PCB wastes which are required to be disposed of in TSCA-approved disposal facilities under the requirements set forth at 40 CFR 761.60. The regulatory text as now drafted still refers only to "regulated hazardous waste" as defined in provisions of 40 CFR Part 261. The suggested revision to the regulatory text would make the regulation itself consistent with the preamble language.

The issue of "regulated pesticide waste" and disposal of empty pesticide containers also needs further clarification in §258.50 of the preamble. We suggest language similar to the following may provide clarification:

> "Regulations under FIFRA (40 CFR 165) govern the disposal of pesticide wastes. Empty pesticide containers are most frequently held in question. However, containers that have been properly rinsed do not present a hazard regardless of the material that the container once held. Random inspections of such containers can be made to assure that all empty containers submitted for disposal are rinsed. Procedures to conduct such inspections safely are available. Since many pesticide products, when they become wastes, do not present a hazard to human health or the environment, they are not regulated under RCRA Subtitle C. These wastes would be acceptable at a Subtitle D facility. The training should stress the importance of not rejecting pesticide wastes categorically and should provide information on identification of pesticide wastes that should be rejected as well as those that should not."

Similar to the PCB issues noted above, the regulatory text in §258.50(a) and §258.50(b) should also reflect this clarification of "regulated pesticide waste" and be consistent with the preamble.

OPTS appreciates the level of cooperation and incorporation of our comments in the proposed rule by OSWER. Additional minor comments are attached. If you have any questions, please feel free to call Mr. Payer of my staff at 382-2917.

Attachment

cc: Dave Levy (PM-223)
Joan LaRock (WH-562A)
Jerry Payer

Attachment to Red Border Review of 40 CFR Parts 257 and 258
Solid Waste Disposal Facility Criteria (Proposed Rule)

Minor Comment

A typographical error appears in the first paragraph of the preamble discussion (pg. 52) on the §258.50, Procedures for Excluding the Receipt of Regulated Wastes. The discussion to the effect that EPA does not intend for this regulation to limit the legal disposal of PCB wastes with concentrations less than 50 ppm incorrectly references 40 CFR 261.60, rather than 40 CFR 761.60, as the authority for the PCB regulations under TSCA.

ENVIRONMENTAL PROTECTION AGENCY
CLEARANCE RECORD

TYPE OF DOCUMENT: Federal Register

IDENTIFICATION (If Any): Proposed Rule

SUBJECT: 40 CFR Parts 257 and 258. Solid Waste Disposal Facility Criteria

NAME OF PERSON MOST FAMILIAR WITH ATTACHMENT: Mike Flynn

ROOM AND BUILDING NUMBER:

PHONE NO: 382-4489

EXPLANATION (Changes in issuances, reports, and [illegible]

THREE WEEK REVIEW PERIOD

FRL# 3227-1

SAR# 2224

Mike Flynn

ORIGINATING OFFICE CLEARANCE

| NAME, TITLE, AND ORGANIZATION | SIGNATURE | DATE |
|---|---|---|
| J. Winston Porter, Assistant Administrator for Solid Waste and Emergency Response | see attached action memo | 6/29/87 |

DEADLINE DATE: 7/20/87

NOTE TO ALL CLEARING OFFICES: THIS DEADLINE DATE HAS BEEN ESTABLISHED FOR RETURN OF ALL CONCURRENCES OR COMMENTS. IF NOT RECEIVED BY THIS DATE YOUR CONCURRENCE MAY BE ASSUMED, UNLESS AN EXTENSION HAS BEEN REQUESTED AND APPROVED

CLEARANCE ROUTING

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AFTER APPROVAL RETURN TO: Dave Levy (PM-223) 415 West Tower 38247206

EPA Form 1300-2 (6-71) *FOR ORIGINATOR USE ONLY

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

JUL 20 1987

OFFICE OF
AIR AND RADIATION

MEMORANDUM

SUBJECT: Red Border Review Comments of Proposed Revisions to Solid Waste Disposal Criteria under Subtitle D of RCRA

FROM: Paul M. Stolpman, Steering Committee Representative for Air and Radiation

R Brenner (for)

TO: J. Winston Porter, Assistant Administrator for Solid Waste and Emergency Response

We have reviewed the above-referenced proposal package. Attached is a marked-up copy of portions of the proposal package with comments in the margins of the document. A summary of these comments is provided below.

- New sections are needed to describe the costs and uncertainties of the air criteria. We have provided suggested language for those sections, as well as for other additions.

- Clarification is needed in the presentation of the risk assessment and cost analysis for groundwater that air impacts are not included. For example, on p. 203, the number of cancer cases for baseline emissions is reported to 0.083 cases/year over the 300-year modeling period. It is not clear that this number does not include cancer incidences resulting from air emissions until p. 226. However, the text states on p. 226 that risks from air emissions were not analyzed. We suggest that any discussion of risks in the groundwater section clarify wherever necessary that those estimates (and the corresponding cost estimates) do not include air considerations.

- Additive individual risks, rather than risks for individual compounds, should be used to determine if landfills are exempted either from the air or groundwater portions of the rule. We have provided suggested changes to the air criteria that address this point, and suggest that you clarify the same point for the groundwater criteria. The use of additive risk is consistent not only with the Agency's risk assessment guidelines, but also with a recent RCRA proposal package for the burning of hazardous waste in boilers and industrial furnaces (52 FR 16994, May 6, 1987).

- We have also added a short section for the air criteria portion of the preamble that describes what the rule actually does, and have indicated that EPA will publish a guidance document to assist in implementation of the rule.

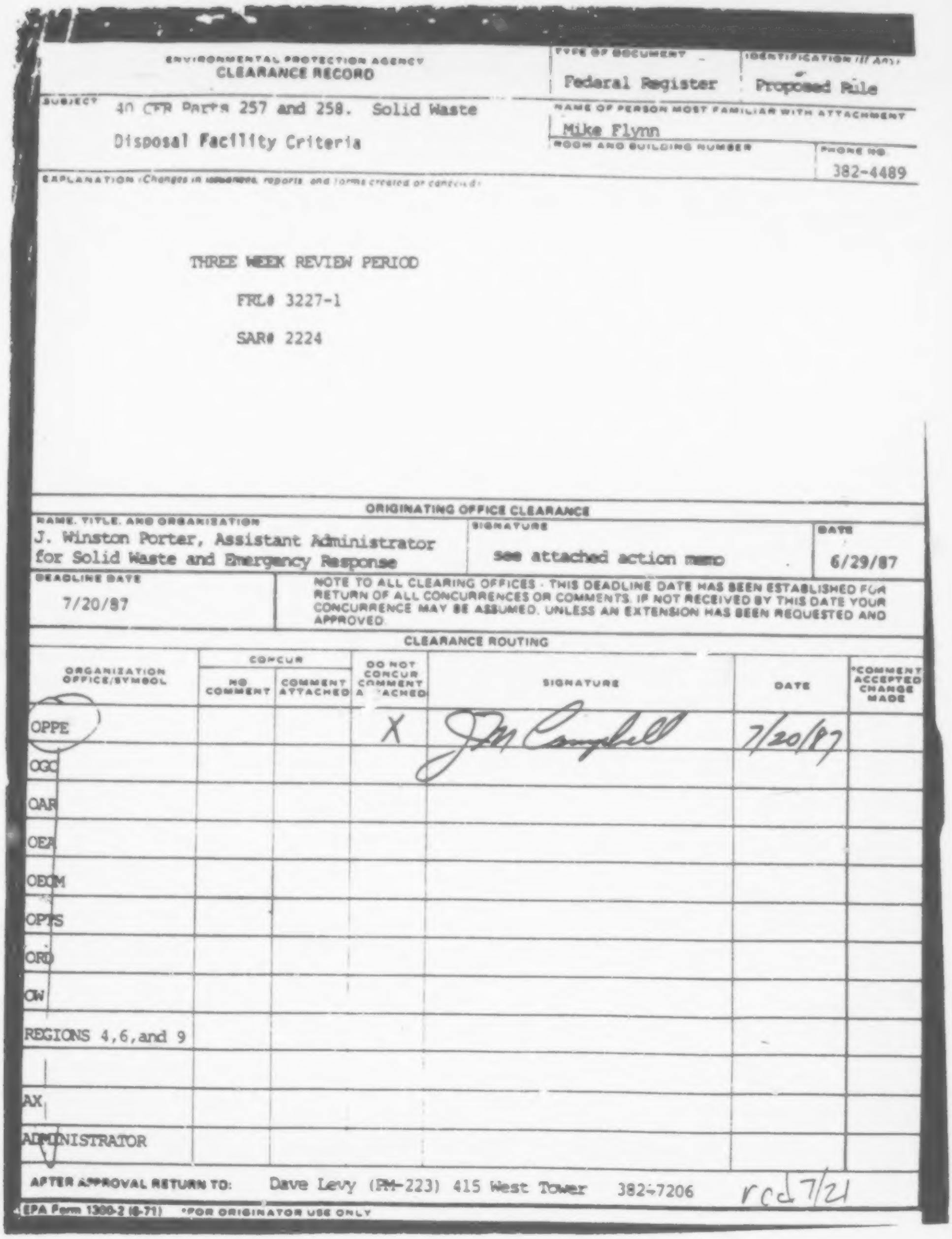
- OSW is requiring quarterly monitoring for the detection of gas migration, and is also requiring that the concentration of explosive gases is not to exceed 25 percent of the lower explosive limit (LEL) in facility structures and the LEL at the property boundary. Acknowledgement is needed that a secondary benefit of the proposed air rule is the prevention of gas migration for large landfills with well-designed and well-operated landfill gas control systems.

- We have several editorial comments on the preamble and rule. Please refer to our comments on pp. 59-69 of the preamble.

If your staff would like to discuss any of the above comments in more detail, please contact Susan Thorneloe (FTS 629-5393) or Vivian Thomson (475-8952).

Attachments

cc: Don Clay
Vivian Thomson
Susan Wyatt
Susan Thorneloe
Mike Flynn



ENVIRONMENTAL PROTECTION AGENCY
**CLEARANCE RECORD**

TYPE OF DOCUMENT: Federal Register
IDENTIFICATION (If Any): Proposed Rule
SUBJECT: 40 CFR Parts 257 and 258. Solid Waste Disposal Facility Criteria
NAME OF PERSON MOST FAMILIAR WITH ATTACHMENT: Mike Flynn
ROOM AND BUILDING NUMBER:
PHONE NO.: 382-4489

EXPLANATION (Changes in issuances, reports, and forms created or cancelled)

THREE WEEK REVIEW PERIOD

FRL# 3227-1

SAR# 2224

ORIGINATING OFFICE CLEARANCE

NAME, TITLE, AND ORGANIZATION: J. Winston Porter, Assistant Administrator for Solid Waste and Emergency Response
SIGNATURE: see attached action memo
DATE: 6/29/87
DEADLINE DATE: 7/20/87

NOTE TO ALL CLEARING OFFICES - THIS DEADLINE DATE HAS BEEN ESTABLISHED FOR RETURN OF ALL CONCURRENCES OR COMMENTS. IF NOT RECEIVED BY THIS DATE YOUR CONCURRENCE MAY BE ASSUMED, UNLESS AN EXTENSION HAS BEEN REQUESTED AND APPROVED.

CLEARANCE ROUTING

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AFTER APPROVAL RETURN TO: Dave Levy (PM-223) 415 West Tower 382-7206 rcd 7/21

EPA Form 1300-2 (6-71) *FOR ORIGINATOR USE ONLY

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

JUL 20 1987

OFFICE OF
POLICY, PLANNING AND EVALUATION

MEMORANDUM

SUBJECT: Proposed Criteria Revisions for Municipal Landfills -- Red Border

FROM: John M. Campbell
Acting Assistant Administrator

THROUGH: The Deputy Administrator

TO: The Administrator

COPY
original signed by
Jack M. Campbell

I recommend that you do not concur with the attached Red Border package proposing revisions to the criteria for municipal landfills.

NON-CONCURRENCE

While I appreciate the considerable efforts made by OSWER's management and staff to work closely with our office on the development of this rule, I object to the rule's approach for determining containment requirements. I concur with all other major aspects of this rule. I object to the rule's approach for setting these design requirements for four reasons:

1. The proposed approach will require half of the municipalities in the U.S. to dedicate scarce resources to containment designs that are unnecessary for the protection of human health and the environment. This rule would require containment systems at many landfills predicted to not pose significant ground water risks in the absence of these containment requirements. Although the risk estimates rely heavily on modelling, the modelling assumptions were generally conservative. The rule's excessive liner and leachate collection requirements contribute greatly to its low cost-effectiveness, $19 billion per case avoided.

2. The proposal's containment design requirements will likely place a severe financial burden on many communities and cause a diversion of resources from other essential uses. OSW has estimated that 2,200 communities may have difficulty affording the rule's requirements.

3. The rule's performance standard of no leachate migration to the aquifer conflicts with earlier decisions made by you and sets a very stringent precedent for the rest of Subtitle D. This performance standard does not allow for consideration of an aquifer's hydrogeologic or resource value characteristics in determining design requirements. This is inconsistent with your decisions in options selection meetings to account for ground water characteristics in this performance standard and with your recent decision involving agricultural chemicals in ground water.

4. The proposed categorical decision rule for determining liner and leachate collection needs severely limits the state role in implementation. This decision rule prevents local governments and states from crafting landfill designs that reflect a broad range of site-specific factors. Under the proposed approach, states would not have flexibility to factor ground water use and value characteristics into decisions on design requirements.

I recommend that we use an alternative approach for setting liner and leachate collection requirements that relies on a performance standard of no off-site degradation beyond an established MCL or other health-based limit, and maximizes the state and local government role in implementation. Under this alternative, the Agency would require facilities to employ preventative measures to ensure that significant contamination of off-site ground water does not occur. These measures could include liners and leachate collection systems or the designation of on-site buffer zones within which ground water use would be restricted. A more stringent performance standard of no leachate migration to the aquifer would apply to landfills located over Class I aquifers.

While this alternative would significantly improve the rule's cost-effectiveness and decrease the expected financial burdens on municipalities, it is still much less cost-effective than health-based standards EPA has set in other programs. Another benefit of the alternative, however, is that it would maximize the role of state and local governments in establishing ground water protection measures. Furthermore, it uses a performance standard that accounts for ground water hydrogeologic and resource value characteristics and is fully protective of human health and the environment.

Adopting this option would not significantly delay proposal of this rule. We would only need to revise the package's discussion of containment requirements and possibly the ground water protection standard for corrective action. The rest of the package would remain unchanged.

OTHER SIGNIFICANT ISSUES

I would also like to bring to your attention two other implications of this rule. First, although I generally agree with the rule's corrective action approach, I am concerned about the requirements to prevent plume growth and restrict increases in constituent concentrations in the plume. As currently structured, these elements of the proposal would require rapid and active restoration at nearly all facilities with releases to ground water. This is inconsistent with the developing regulations for corrective action for solid waste management units (SWMUs) under Subtitle C of RCRA, which allow flexibility in timing of responses and the use of passive restoration measures in certain situations where appropriate.

Second, I am not convinced that the ban on leachate recirculation makes sense. Many owners/operators support leachate recirculation as an environmentally sound practice. Further, while we have banned leachate recirculation, we have not set up standards for the management of this leachate. Prior to promulgating a final rule, we should evaluate the consequences of leachate recirculation further and assess the need for leachate management standards.

I commend OSWER's efforts to accommodate the interests of many diverse groups in developing this rule. I am committed to an expedient resolution of our non-concurrence with OSWER management and staff.

cc: J. Winston Porter
Francis S. Blake

ENVIRONMENTAL PROTECTION AGENCY
**CLEARANCE RECORD**

TYPE OF DOCUMENT: Federal Register

IDENTIFICATION (If any): Proposed Rule

SUBJECT: 40 CFR Parts 257 and 258. Solid Waste Disposal Facility Criteria

NAME OF PERSON MOST FAMILIAR WITH ATTACHMENT: Mike Flynn

ROOM AND BUILDING NUMBER:

PHONE NO.: 382-4489

EXPLANATION (Changes in issuances, reports, and forms created or cancelled):

THREE WEEK REVIEW PERIOD

FRL# 3227-1

SAR# 2224

JUL 2 1987

ORIGINATING OFFICE CLEARANCE

NAME, TITLE, AND ORGANIZATION: J. Winston Porter, Assistant Administrator for Solid Waste and Emergency Response

SIGNATURE: see attached action memo

DATE: 6/29/87

DEADLINE DATE: 7/20/87

NOTE TO ALL CLEARING OFFICES - THIS DEADLINE DATE HAS BEEN ESTABLISHED FOR RETURN OF ALL CONCURRENCES OR COMMENTS. IF NOT RECEIVED BY THIS DATE YOUR CONCURRENCE MAY BE ASSUMED, UNLESS AN EXTENSION HAS BEEN REQUESTED AND APPROVED.

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AFTER APPROVAL RETURN TO: Dave Levy (PM-223) 415 West Tower 38247206

EPA Form 1300-2 (6-71) *FOR ORIGINATOR USE ONLY

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION VI
[illegible]
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August 5, 1987

**MEMORANDUM**

SUBJECT: Proposed Revisions to Solid Waste Disposal Criteria under Subtitle D of RCRA

FROM: Robert E. Layton Jr., P.E.
Regional Administrator (6A)

TO: J. Winston Porter, Assistant Administrator
for Solid Waste and Emergency Response (WH 562A)

Attached is the Clearance Record for the 40 CFR Parts 257 and 258 Solid Waste Disposal Facility Criteria. As indicated on the Record, I have concurred on the proposed Subtitle D revisions with comments.

As lead RCRA Region, Region 6 collected and consolidated the other Regions' technical comments regarding the revised Criteria. Most of the comments (attached) requested definition or language changes. Where particular comments recommended an approach different to that presented in the proposed Criteria, specific language was offered as an alternative. Region 6 also conducted a conference call on July 22, 1987, to gather the other Regions' positions on the implementation of the revised Subtitle D Criteria. Of the nine Regions participating, all agreed that the resources mentioned in OSWER's Subtitle D budget initiative (30 Regional FTEs and $10 million for State Grants) were the minimum required to begin preliminary activities. The concensus was that a more reasonable option would be 50 Regional FTEs and $25-30 million for State grants. If additional resources are not available or adequate, then a reduction in the non-essential HSWA content (i.e., requirements other than location criteria, groundwater monitoring and corrective action) of the Criteria is recommended to make implementation more feasible.

Region 6 is also concerned with the requirement for non-State, Federal or Indian tribe entities to demonstrate financial responsibility for closure, post-closure and corrective action (if applicable). The premise for the requirement is acceptable; i.e., to protect public health and the environment by ensuring that adequate funds are available for environmental action, and to assure that individuals conducting activities potentially harmful to public health or the environment will plan for and pay the costs of minimizing or eliminating the risk. The questions which must be answered include whether the owners and operators of these facilities can meet these financial requirements; and, if they do, will increased disposal costs prompt illegal disposal activities (e.g., roadside dumping dumping and open burning of waste).

Finally, the Region would support the notion of carefully analyzing whether sufficient risk exists to justify the cost of implementing the revised Criteria as proposed. Subtitle C provisions such as the "cradle-to-grave" management approach to hazardous waste, the HSWA small quantity generator provisions, and an active enforcement program have done much to deter potential problems at Subtitle D facilities. In addition, from a total of 951 facilities currently on the NPL, 184 (19%) are closed municipal solid waste landfills. Though this is a significant percentage, it represents less than two percent of all municipal facilities.

Attachments

cc: Marcia Williams (WH-562)
Dave Levy (PM-223)

## CONSOLIDATED REGIONAL COMMENTS on the REVISED SUBTITLE D CRITERIA

1) 40 CFR Parts 257.2 and 258.15

- Under "Industrial Solid Waste", the following revisions are recommended:

  - Add the parenthetical phrase "(excluding pesticides)" after "fertilizer/agricultural chemicals". (Region 8)

  - Add the phrase "excluding hazardous chlorinated hydrocarbon wastes" after "organic chemicals". (Region 8)

  - Add the phrase "excluding heavy metal hazardous waste" after "inorganic chemicals". (Region 8)

  - Add the phrase "except used motor and lubricating oils" after "oil and gas waste". (Region 8)

  - The exclusion of oil and gas waste should be narrowed so not to eliminate wastes produced by refineries. The last sentence should be revised to read "This term does not include mining wastes or wastes associated with the exploration, development or production of crude oil or natural gas." (Region 4)

- Include definitions found on the "Industrial Facilities Notification Form" for infectious waste, municipal solid waste, waste and waste water. (Region 8)

2) 40 CFR Part 258.15

- The definition for household waste should be revised to appear as "...including but not limited to single and multiple...". (Region 6)

  Also, add language regarding large bulky items such as freezers, refrigerators, stoves, washers, dryers, hot water heaters and furniture as found under Part 257.2. (Region 8)

- Include the definition for "disposal" as found under Part 257.2. (Region 8)

3) 40 CFR Part 258.37

- The phrase "receiving any solid, semi-solid or putresible wastes that may attract birds and is," should be deleted from paragraph (a) since municipal solid waste landfills, by definition, receive wastes that may attract birds (i.e., household waste). (Region 4)

4) 40 CFR Part 258.38

- The preamble discusses the importance of wetlands and EPA's identification of wetlands protection as a "top priority". Yet, EPA is proposing to allow existing landfills located in wetlands to remain in operation provided they meet certain criteria. Landfills located in wetlands are, by their very presence, a more immediate threat to public health and the environment than landfills located in "Banned Locations" identified in Subpart D, which may pose a threat to public health and the environment at some future date should the landfill structural components fail. We strongly recommend that EPA impose greater restrictions on landfills in wetlands [illegible] amending Part 258.38(b) as follows:

> (b) Existing units of municipal solid waste landfills that are located in wetlands must close within 5 years unless the owner or operator makes the demonstration specified in paragraph (a) of this section.

Making this change will probably not have much of an impact on existing municipal landfills since, for all practical purposes, wetlands would likely fall into the category of "banned locations" covered by Part 258.42, and to a lesser degree Part 258.41. (Region 4)

In addition, paragraph (c) should be revised to appear as "...organic soils which are representative of saturated soil conditions." To utilize a definition limited by vegetation would not be descriptive enough. (Region 6)

5) 40 CFR Part 258.41(a)

- The term "structural components" needs to be defined. (Region 8)

6) 40 CFR Part 258.70(b)

- Recommend that the word "routine" be substituted for "ongoing". (Region 4)

7) 40 CFR Part 258.73

- Paragraph (c) would appear to effectively preclude use of other technologies to control non-methane gas emmissions. Recommend that this paragraph be revised to allow use of "other control technologies that are equally effective." (Region 4)
- Paragraph (d)(1) fails to account for synergistic effects posed by the presence of two or more toxic contaminants. (Region 4)

8) 40 CFR Part 258.95(a)

- The phrase "and/or" should be substituted for the "and" between "artificial" and "natural", otherwise this paragraph could be interpreted as requiring both artificial and natural barriers. (Region 4)
- Include some examples of natural barriers which would limit access. (Region 8)

9) 40 CFR Part 258.110(a)(1)

- Prevention of run-on is important not only during the active life of a unit but also during its post closure period in order to minimize leachate generation and cover damage. Recommend inserting the phrase "and closed between "active" and "portion". (Region 4)

- The time allowed for compliance with Subpart G, as specified in paragraph (c), was met with opposite reactions by two of the commenting Regions. One Region stated that five years may be reasonable to implement a corrective action program but is excessive for merely implementing a groundwater monitoring program. The Region suggested requiring the establishment of a groundwater monitoring system within one year of the effective date of the regulations, full compliance with Phase I, II, or III monitoring requirements within two years of the effective date, and compliance with corrective action in accordance with a schedule established pursuant to Part 258.237. (Region 4)

  The other Region's comment stated that the five year limitation may be optomistic and that seven years may be more realistic given the number of competent hydrogeologists and drilling companies required to assist the owners and operators of the nearly 7,000 existing landfills regarding compliance with this requirement. (Region 6)

16) 40 CFR Part 258.231

- Delete paragraph (b)(2) and the reference to (b)(2) in paragraph (b) because it is redundant. (Region 4)

  Substitute the phrase "not exceed" for "correspond to" in paragraph (b)(1). (Region 4)

  Allowing states to increase the cancer risk level from 10-6 to 10-4 or greater as specified in paragraphs (b)(3) and (c), will result in different health protection standards depending on where one resides. This could also lead to complex jurisdictional disputes in cases where a landfill is situated on the boundary of two states which share a regional aquifer and the state in which the landfill is located has less stringent health protection standards than the adjacent state. (Region 4)

17) 40 CFR Part 258.232(b)

- Typographical error: "of gradient" should be "up-gradient". Also, the phrase "screened or perforated interval(s)" should be substituted for "sampling depth" in paragraph (b)(1). Sampling depth is not necessarily the same as the screened interval. (Region 4)

- Typographical error: "uppermost" has been printed twice in succession. (Region 6)

18) 40 CFR Part 258.233(a)

- The word "written" should be substituted for the word "consistent" in paragraph (a). Following a written procedure should ensure consistency. (Region 4)

- Insert the phrase "and other monitoring parameters" following "hazardous constituents" in paragraph (b). (Region 4)

- The term "statistically significant" needs to be defined in paragraph (h). (Region 5)

19) 40 CFR Part 258.234(b)

° Provision should be made for alternative Phase I monitoring parameters to those listed in paragraph (b). In areas underlain by saline groundwaters, Phase I parameters may be at such high levels as to mask contamination. Also, in a coastal setting, the concentration of the Phase I parameters would tend to increase in the down-gradient direction. (Region 4)

° Recommend that nitrates and phenols be added to the list of Phase I parameters. (Region 6)

20) 40 CFR Part 258.235(e)

° Delete the "one" preceding "parameter". (Region 4)

21) Industrial Facilities Notification Form

° Should include a request for the following information:

- Topographic map to identify wetland areas and drainage pathways which may carry run-off contaminants via surface water;
- soil survey map to identify and locate soil types;
- zoning map showing land use within one mile of the facility to identify areas of potential exposure in the event of a release;
- a statement regarding whether or not the facility is located in a 100 yr. flood plain; and
- request any Clean Water Act §§402 or 404 permits and information which pertains to the facility. (Region 6)

° On the first page under ID#, recommend that EPA develop a different numbering/lettering system than what is currently used for the hazardous waste program in order to avoid confusion when determining a facility's regulatory status. (Region 9)

° III (2) - Revise the "Total Amount" category to show separate amounts for both solid and liquid wastes. (Region 9)

[redacted]

ENVIRONMENTAL PROTECTION AGENCY
**CLEARANCE RECORD**

TYPE OF DOCUMENT: Federal Register

IDENTIFICATION (If An: Proposed Rule

SUBJECT: 40 CFR Parts 257 and 258. Solid Waste Disposal Facility Criteria

NAME OF PERSON MOST FAMILIAR WITH ATTACHMEN: Mike Flynn

ROOM AND BUILDING NUMBER:

PHONE NO.: 382-448

EXPLANATION (Changes in issuances, reports, and forms created or canceled):

THREE WEEK REVIEW PERIOD

FRL# 3227-1

SAR# 2224

**ORIGINATING OFFICE CLEARANCE**

| NAME, TITLE, AND ORGANIZATION | SIGNATURE | DATE |
|---|---|---|
| J. Winston Porter, Assistant Administrator for Solid Waste and Emergency Response | see attached action memo | 6/29/87 |

DEADLINE DATE: 7/20/87

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

JUL 23 1987

OFFICE OF
WATER

MEMORANDUM

SUBJECT: Red Border Review of the Subtitle D Regulations

FROM: for Rebecca Hanmer
Lawrence J. Jensen, Assistant Administrator
for Water

TO: J. Winston Porter, Assistant Administrator for
Solid Waste and Emergency Response

I have completed my review of the Subtitle D regulations and concur with comment. My staff has informed me that they worked closely with your staff on issues of significant concern to various OW programs. They expressed satisfaction with the cooperative efforts extended by OSW. These efforts have led to the resolution of all major issues and only a few comments which further address past issues and enhance our past recommendations remain.

We appreciate your efforts to use the basic ground-water classification approach. Though Subtitle D does not utilize the classification approach entirely, we feel that your use of the class three definition after preventative measures have failed and your reference to the Guidelines as a possible tool for States to determine facility placement is acceptable at this point in the Guidelines development.

We were concerned with preventing operation and placement of these facilities in wetlands. The qualified ban you establish in the rule should help dissuade facilities from locating in these vulnerable ecosystems. We are still concerned, however, about the need to:

1) prevent placement of sites in wetlands while the rule is being promulgated;
2) prevent lateral expansion in wetlands; and
3) clarify that this is a qualified ban.

See the attached memo for further detail on these issues.

Finally, we want to make sure that the language in these regulations does not cast a negative light on the 405(d) sludge regulations which utilize a risk approach in contrast to your technology-based approach. I believe our staffs have discussed in length the reasons why these different approaches are appropriate for the different regulations. Only minor comments remain and they are as follows:

1) Pg. 104, Par. 3 -- Remove or soften the language that currently reads "However, EPA also believes that these processes are difficult to predict without considerable ..... can be empirically measured."

2) Pg. 105, Par. 1 -- Soften the word degradation in the sentence that ends: "...that an approach that allows degradation of the aquifer."

3) Pg. 121, Par. 4 -- Please note regarding the following statement, "Second, this approach concentrates on ground-water effects and does not address air or surface water effects modeling," that the monofill approach does address the vapor effects of VOCs.

4) Pg. 128, Par. 3 -- Add after last sentence, "The Agency believes that this approach is appropriate for sewage sludge that is monofilled. Sewage sludge and resulting leachate composition can routinely be determined by chemical analysis and a greater degree of control can be exerted over concentrations of toxic constituents in sludge to meet the risk-based standards through pretreatment programs."

Once again I would like to thank you and your staff for your willingness to work with OW and address these important areas of concern. I look forward to reviewing your future regulations.

Attachment

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

MEMORANDUM

JUL 17 1987

OFFICE OF
WATER

SUBJECT: Review of RCRA Subtitle D Regulations

FROM: John Meagher
Office of Wetlands Protection
John M.

TO: Caren Rothstein
Water Policy Office

We have reviewed the draft RCRA Subtitle D proposed regulations and recommend the following changes:

1. Modify the preamble discussion on the effective date of implementation. This discussion presents an 18 month lag in implementation as the preferred option. Since the time between proposal and promulgation may be a year or more, this sends the signal that it will be several years from now before the ban with waiver on wetlands takes effect. We are concerned that this will promote siting of landfills in wetlands now, especially since the proposal makes clear that landfills already sited in wetlands can continue to operate (without lateral expansion). We recommend that either a six month effective date on the wetlands requirements be proposed, or that the proposal does not discuss any specific timeframes but instead solicits comments on the matter.

2. The provision that the wetlands requirements apply to lateral expansions of existing landfills sited in wetlands is in the preamble, but not in the rule itself. We recommend changing §258.38(a) to read "New units of a municipal solid waste landfill shall not be located in wetlands, nor shall existing units be laterally expanded in wetlands, unless..." (new text underlined).

3. The Section number at the top of page 8 is missing.

4. The action memorandum (page 3, second ¶) states that wetlands siting is banned; it should be made clear that the provisions are really a ban with waiver. The same paragraph implies existing units in wetlands must be closed within 5 years unless there is no practicable alternative. However, this is not the manner in which the rule addresses existing units in wetlands without lateral expansions.

We appreciate the opportunity to comment on these rules, and note that OSWER has been extremely cooperative in ensuring wetlands are appropriately handled in this package. We recommend that OW commend them for this. Please call (382-5043) me if you have any questions on these comments.

Mike Flynn

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

JUL 20 1987

OFFICE OF
RESEARCH AND DEVELOPMENT

SUBJECT: Red Border Review of Proposed Revisions of Solid Waste Criteria Under Subtitle-D of RCRA

FROM: Courtney Riordan, Director W.A. Keith/for
Office of Acid Deposition, Environmental Monitoring
and Quality Assurance (RD-680)

TO: Irwin Baumel, Director
Office of Regulatory Support and Scientific Analysis (RD-672)

The Office of Solid Waste and Emergency Response (OSWER) has assembled an overall excellent package proposing revisions to existing criteria for solid waste disposal facilities and practices under Subtitle-D of RCRA. The criteria deal with a very complex and extensive environmental problem. The OADEMQA review and comments deal with site characterization, indicator parameters and time of travel to the aquifer.

The comments (attached) are forwarded to OSWER for consideration. Informal discussions with OSWER have occurred previously regarding these comments. We do concur on the proposed ruling and encourage further dialogue with OSWER to refine comments or elaborate further, if necessary.

Attachment

# REVIEW OF PROPOSED REVISIONS TO SOLID WASTE DISPOSAL CRITERIA UNDER SUBTITLE-D OF RCRA

Subpart F Section 258.200, Methodology for Determining Location Categories, and Appendix-II deal with determining the time of travel between the base of the unit and the uppermost aquifer. Predicting the time it will take a contaminant to travel from the land surface to the uppermost aquifer is difficult under most circumstances. The discussion does point out that the selected method, $T = D/V$, is very conservative, as it does not take into account any factors which could attenuate contaminants in the subsurface. The equation is most applicable to the advective movement of water under saturated conditions. Predicting the movement of water and contaminants under vadose zone conditions is even more complex. To improve the confidence of the prediction, owners and operators need to be encouraged to characterize their sites adequately. This means that more than one soil boring through the overburden to the aquifer needs to be made. It is critically important to investigate the spatial variability of the subsurface directly underlying the site and in the area adjacent to the site.

In the preamble under Section 258.233, Ground-Water Monitoring Systems, a reference is made to the use of the TEGD for guidance. Some other references that should be cited, either in the preamble at the beginning of Subpart G or within specific sections are as follows:

Barcelona, M. J., J. P. Gibb, J. A. Helfirch, and E. E. Garshe. 1985. Practical Guide for Ground-Water Sampling. EPA/600/2-85/104

Scalf, M. R. J. F. McNabb, W. J. Dunlap, R. L. Cosby, and J. Fryberger. 1981. Manual of Ground-Water Sampling Procedures. EPA Document distributed by the National Water Well Association.

USEPA. 1987. Handbook: Groundwater. EPA/625/6-87/016

On page 33 of the preamble and page 5 of the regulations it is stated that MSWLFs shall not restrict the flow of the 100-year flood, reduce the temporary water storage capacity of the floodplain, or be subject to washout of solid waste so as to pose a hazard to human health, wildlife, or land or water resources. We are not aware that it is physically possible to have a MSWLF located in the floodplain that does not restrict the flow or reduce the temporary water storage capacjty of the floodplain to some extent. If the intent is to ban all MSWLFs in the 100-year floodplain, than the regulations should state this. The preamble (page 36) states that 14 percent of all MSWLF are located in floodplains, which may indicate that there are inadequate restriction on floodplain siting. The wording could be interpreted to mean that a ban on siting in the floodplain is intended. If this is not the case the regulation should be modified to state that MSWLFs shall not significantly restrict the flow or significantly reduce the temporary water storage along with some indication of what is meant by significant.

The preamble states that EPA estimates that 14 percent of all MSWLFs are located in floodplains (page 36) and 6 percent of all MSWLFs are in wetlands (page 39). Some indication should be given as to how EPA arrived at these figures and what are their approximate accuracy.

Implementation of the new regulations will require technical interpretations to be made by facility owners/operators and permit applicants, as well as by the regulatory personnel in areas requiring expertise that is not presently commonly available to them. Consistent and comprehensive implementation of the proposed revisions will require considerable guidance and technology transfer to the owners/operators and permit applicants as well as to state and local regulatory personnel. Some of this could be accomplished through the development of guidance documents and expert systems. The preamble should address this aspect of the proposed regulations.

The preamble mentions the Corps of Engineers' and EPA's definition of wetlands relative to Section 404 of the Clean Water Act. However, no mention is made of the Administrator's agreement with the Corps of Engineers published in the Federal Register relative to using RCRA instead of Section 404 to regulate certain discharges to wetlands and for certain aspects of wetland protection. Some discussion of how this agreement relates to the proposed Subtitle D regulations should be included in the preamble.

Groundwater monitoring requirements are presented in some great detail relative to MSWLFs. However, no monitoring requirements are included (or the requirements are not detailed) relative to MSWLFs located in wetlands, 100-year floodplains, or banned locations. Monitoring program requirements at facilities located in (or near) wetlands under the proposed revisions should be adequate to detect flow that is horizontal or upward, and may need to explicitly include surface water monitoring and biota monitoring as parts of the overall program. Particular attention should be placed on the special monitoring needs of wet environments.

Some consideration should be given to establishing buffer zones around location types where the regulations would apply relative to the sitting of MSWLFs in wetlands, floodplains, and banned locations. This should include those locations that would result in irreparable harm to sensitive ecological systems, or include factors that result in failure of various landfill components, or are in subsidence-prone areas, and unstable areas.

In regards to the indicator parameters, there will likely be a number of situations where the proposed Phase I indicators will work as suggested by the references cited by Roulier of HWERL. Unfortunately, it is also likely that there will be a number of situations where the proposed indicators will not work effectively. At the present time, it is not possible to estimate the ratio of successful to unsuccessful situations.

Our recommendations are included below:

- It is recommended that organic monitoring receive increased emphasis at the Phase I level. Based on results obtained during the evaluation of the Subtitle C Indicator Parameters, it is suggested that scanning for volatile organic compounds may be useful. If volatile compounds are not detected, then no further organic analyses would be required. However, if the number of detectable volatile organic compounds exceeds a predetermined limit, then additional organic testing (base/ neutral compounds, acid extractable compounds, and pesticides) would be required.

- We discourage the analysis of the extensive list of Appendix IV organic compounds. An evaluation of monitoring data from Subtitle C and Superfund sites suggests that this approach would be extremely inefficient. The likelihood of finding a large number of chemical contaminants is low, the ability to use the data effectively is questionable, and the cost to owners and operators will be high.
- It is recommended that all samples collected for inorganic analyses be filtered. As pointed out during the discussion of the Phase I indicators, it is unlikely that particulate constituents will migrate in a ground-water environment and the use of unfiltered samples could be compromised by particulate contamination during the sample collection process.
- It may be worthwhile to explore the potential use of Eh as an indicator. It could provide an indirect means to detect the presence of a leachate plume due to the creation of anoxic or anaerobic conditions.

# TESTIMONY BEFORE

# HAZARDOUS WASTE AND TOXIC SUBSTANCES SUBCOMMITTEE
OF THE
UNITED STATES SENATE COMMITTEE
ON
ENVIRONMENT AND PUBLIC WORKS

N. C. Vasuki, P.E., General Manager
Delaware Solid Waste Authority
P. O. Box 455
Dover, Delaware 19903-0455

December 3, 1987

Thank you for inviting us to present testimony before the Hazardous Waste and Toxic Substances Subcommittee of the United States Senate Committee on Environment and Public Works. In accordance with your instructions, the appropriate number of copies of my testimony has been delivered to the committee staff.

Congress has acted promptly and responsibly in trying to forestall a crisis in solid waste disposal through the enactment of P.L. 89-272, P.L. 91-512, the Resource Conservation and Recovery Act of 1976 (RCRA), and the Superfund Amendments and Reauthorization Act (SARA). Delaware's interest in environmental protection is clearly evidenced by the efforts of our former Senator, J. Caleb Boggs, a member of this august committee, who cosponsored the most far reaching environmental protection legislation between 1960 - 1972.

Some states have taken these laws seriously and implemented programs to prevent a crisis from developing. I am proud that the State of Delaware, although small in size, has shown extraordinary leadership in this area.

## BACKGROUND

In 1970 Governor Russell W. Peterson (a Republican) formed a Science and Technology Task Force to review the State's future problems and suggest ways and means to avoid such problems. The Task Force recognized solid waste disposal as one such problem. At the same time, two members of the Delaware General Assembly, Representative Robert J. Berndt and Representative J. Donald Isaacs, sponsored a bill to provide $1 million for research to investigate the practicality of recycling materials from solid waste.

Hercules, Inc. (a large Delaware chemical corporation) was selected to perform this research and development work which resulted in the Delaware Reclamation Project (DRP), a multi-materials recovery system. Under P.L. 91-512, the Congress sponsored a program for demonstration of new technology. The State of Delaware had the right application at the right time to receive the largest grant ($9 million) for this project from the U. S. Environmental Protection Agency (EPA).

After having received the grant, we ran into a problem. The EPA grant directed Delaware to demonstrate the co-firing of Refuse Derived Fuel (RDF) in an oil-fired utility boiler. As a result of the energy crisis at that time, the newly created Federal agency, The Federal Energy Administration (FEA), informed the utility it could no longer burn oil and that it must convert to coal. The Demonstration Grant was caught between the two federal giants and we were literally between a rock and a hard place. The project appeared to be doomed because neither federal giant was willing to reconsider its decision. An appeal to our Senior Senator, William V. Roth, resulted in the two federal administrations agreeing to allow the project to continue and the DRP rose like the Phoenix again. Senator Roth was also instrumental in directing the attention of another giant federal agency, the U. S. Army Corps of Engineers (Corps) to cooperate with the DSWA in utilizing the Cherry Island dredge spoil disposal area near Wilmington, Delaware for both landfilling and dredge spoil disposal. This joint effort between the Corps and DSWA has benefitted both groups in their long range planning and missions. We are most grateful to Senator Roth for his foresight and assistance in this matter. Without his help, the plant, as it is today, would not exist.

In 1975, the three counties in Delaware were finding that their existing landfills were filling up alarmingly fast and selecting new sites was certainly "hazardous" to the reelection of State or local officials. Governor Sherman W. Tribbitt (a Democrat) continued to support the concept of reclamation of materials from solid waste even though the project was sponsored by his predecessor, Governor Peterson. He arranged a meeting between the leadership of both parties and the County Executive of New Castle County (our most populous county with 70% of the State's population) to decide on what role the State Government should play in resolving the solid waste disposal problem. It was also to decide the question of whether the State Department of Natural Resources and Environmental Control, the regulatory agency which had received the grant from the EPA for the Delaware Reclamation Project, was the appropriate agency to pursue the project to completion.

The consensus of the meeting supported the concept of an independent State Authority to plan, manage and operate a solid waste disposal system for the State, including the Delaware Reclamation Project. This concept, similar to the Connecticut Resource Recovery Authority, was approved overwhelmingly by the Delaware General Assembly and the Delaware Solid Waste Authority's first Board of Directors was named in October 1975. Governor Pierre S. duPont (a Republican), who succeeded Governor Tribbitt, fully supported the Authority and enhanced its powers. His successor, Governor Michael N. Castle (a Republican), continues to strongly support the Authority in all of its activities.

Since its inception, the Authority has completed:

(1) The Delaware Reclamation Project -

capable of processing 250,000/tpy
municipal solid waste and 65,000/tpy
sewage sludge;

(2) The Energy Generating Facility -
capable of combusting 175,000/tpy of
Refuse Derived Fuel (RDF) and mixed
solid waste;

(3) New environmentally engineered landfills
in each of the three (3) counties in Delaware.

The net result is that Delaware, unlike other states, has assured capacity to dispose its own solid waste for the next twenty years. This extraordinary achievement could not have been accomplished without the foresight and the interest of the State's political leadership.

## THE AUTHORITY

With this background, let me briefly explain how we achieved some of our goals. The Delaware Solid Waste Authority (DSWA) is governed by a Board consisting of seven Directors who are appointed by the Governor with the consent of the Senate. The Board members are seven (7) citizens who serve without pay. They represent the three counties in Delaware and the City of Wilmington through residency requirements. The Board membership requires a political balance so that either major political party cannot exceed the other major political party by more than one (1). The Board has acted in a nonpartisan manner in all of its decisions during the last twelve years. The Board, therefore, has played a very important role in defusing what would otherwise be a local political problem.

In forming the Authority (see 7 Delaware Code, Chapter 64), the

General Assembly gave three specific mandates. They are:

(1) The Authority should maximize resource recovery and minimize landfilling.

(2) The Authority should make maximum use of private industry in its activities.

(3) The Authority should provide long range planning and implementation of a statewide solid waste management program.

The General Assembly also gave the Authority extraordinary powers to carry out its mandates. I am proud to say that the Authority has succeeded to a great extent in fulfilling these mandates.

## PLANNING

The Authority's first goal was to implement the DRP. In 1977, the Authority received proposals to design, construct, and operate a plant which would process 1000 tons of municipal solid waste and 350 tons of municipal sewage sludge. Raytheon Service Company was selected for this purpose and the project design started September 1978.

The groundbreaking was in September 1979. Construction of the entire plant was completed in February 1983 and the Commercial Operation of the plant started in March 1984. This demonstration project is the only project funded by the U.S. Environmental Protection Agency (pursuant to Section 208 of P.L. 91-512) which continues to process solid waste and sewage sludge.

The Authority reviewed the use of RDF at the Edgemoor Plant of Delmarva (the local utility). The company had been granted special permission by the FEA to combust oil during a demonstration phase of the project in lieu of coal. By this time, the energy situation had changed somewhat and the Authority found that the utility would not be a reliable user of the entire RDF fraction.

Therefore, the Authority investigated an alternate approach to combust the RDF in order to produce steam or electric power. In 1985, the Authority was able to contract with a private company to design, construct, and operate such a plant adjacent to the Authority's Reclamation Plant on Authority-owned land. In this plant oil is co-fired with RDF and the quantity of oil used is minimized.

The DSWA, from the very start, has insisted that new landfills must be constructed to continue to serve Delaware's needs while it was pursuing resource recovery. Obviously, this was a most difficult step. By choosing an open site selection process and consistently following the publicly announced procedures, the Authority was able to site three new landfills in the State within a period of five (5) years, a record in itself.

The DSWA informed the public at large that the new landfills would be a major departure from the dumps which the public was accustomed to. Needless to say, this process needed the patience of Joab and a thick skin. It has lived up to such a commitment. The new landfills are designed, constructed, and operated to meet high stan-standards which are yet to be proposed by the EPA under Subtitle D of the RCRA. The construction and operation of these new landfills has resulted in an improved public perception of Delaware's program for solid waste disposal.

The DSWA is involved in testing the performance of landfills with and without recycling of leachate. The cost of such research has been funded by DSWA. EPA has refused to participate in such a study. This test will also indicate the "real" contribution of household hazardous waste to the leachate generated by household solid waste.

The DSWA is currently reviewing its long range plan in order to approach the level of 100% processing of household solid waste to recover materials for recycling. Even after this level of processing, the remaining industrial and commercial wastes, which have no value from a materials recovery viewpoint, will be combusted for energy recovery. Those wastes which have no calorific value will require landfilling.

In this respect, Delaware has taken a different step as compared to the other states. We have found that in Delaware central processing of solid waste will result in a more reliable and continuous program for recovering metals and glass for recycling. Some Delaware communities tried mandatory source separation programs. They found low level citizen participation and a problem with enforcement of the ordinance. The communities retracted the mandatory ordinance. However, on a voluntary basis, community groups such as school bands, Boy Scouts, etc., collect source separated newspaper and aluminum.

Delaware's program is simple to accomplish. It only asks its citizens to put garbage in garbage cans and place them at the curbside. It is what they have always done for many years. If people want to source separate and sell newspaper, aluminum, or glass, they are free to do so. If they become tired of source separation, the Authority's facilities will always be there as a secondary net. The already over-regulated public supports this simple concept. With fewer rules to obey, the enforcement requirements are also eliminated. Ultimately the success of any regulation depends on the level of enforcement.

OPERATIONS

In October 1987, the plant completed processing its one millionth ton of solid waste. This plant recovers aluminum, glass, and ferrous metals from the solid waste. In addition, it produces 130,000 tons per year of RDF for the Energy Generating Facility and 100,000 tons per year of compost from the mixture of the remaining solid waste and sewage sludge. A brochure describing the project is attached.

Currently, 70% of the State's household solid waste is processed in the Authority's Delaware Reclamation Project. The revisions to the State's Plan will consider setting up a processing plant in the Southern part of the State. Aluminum, glass, ferrous metals, and certain plastics will be reclaimed. The paper and film plastic fractions will be combusted to recover energy. The ash from these facilities will be disposed in the Authority's own landfills. We expect the facility to serve the two southern counties will be in operation within the next five (5) years. In the meanwhile, nearly 225,000 tons of solid waste are being landfilled in the new landfills which have synthetic liners, leachate collection systems, gas and groundwater monitoring systems (see attached brochures).

Delaware has also enacted a "Bottle Bill" (7 Delaware Code, Chapter 69). This law requires a 5 cents deposit on beverage containers made out of glass, steel, and plastic (1 liter). There are no deposit requirements on 2 liter plastic beverage containers and aluminum beverage containers. This law has been very successful. On a statewide basis, nearly 60% of the aluminum cans are recycled and in New Castle County we have achieved a recycling level of over 80%.

FINDINGS

Based on our experience over the past twelve years, we find that:

1) The laws enacted by the Congress are sufficient to resolve the solid waste disposal problem.

2) The deficiency has been in the implementation of these laws at the national and state levels..

3) The U.S. EPA has been woefully slow in developing regulations. You cannot expect the states and local communities to obey the law unless appropriate regulations are promulgated on a timely basis. To put it bluntly, we need to know the rules of the game.

4) A comprehensive long range solid waste disposal plan needs the following:

a) Materials recovery from solid wastes - either through source separation programs or central processing systems (this removes about 10% the waste stream).

b) Energy recovery from the easily combusted fraction (this removes about 50% of the waste stream).

c) Composting the organic fraction (this removes about 15% of the waste stream).

d) Landfilling the remaining fraction along with the residue from materials recovery, composting, and ash from energy recovery.

Diverse and competing technology is available for the first three steps. Landfill design, construction, and operation methods have been significantly improved during the past decade.

5) There is a tendency among some groups to hang the word

"hazardous" on practically everything. By labeling something as "hazardous", one creates more problems in disposing the material and only the lawyers seem to benefit. The cost of disposal is materially increased without concurrent increase in safety or environmental protection. The public perception is also altered by this labeling and the news media hype makes the decision making process lengthy and much more cumbersome.

6) The public readily accepts the use of hazardous materials. For example, on a daily basis, the population rides on at least 8 - 10 gallons of a highly hazardous material - gasoline. There is no way Congress or EPA can alter the public's usage of this hazardous material. It is a risk which people are willing to take even though automobiles kill more people in one year than the cumulative deaths (since the turn of the century) resulting from solid waste disposal practices.

7) The ash from municipal solid waste incinerators can be economically handled and disposed safely without attaching the label "hazardous" to it. After all, the current laws and regulations allow the same material "unburnt" to be disposed in landfills with liners and leachate collection systems. The metals such as lead and cadmium are present in the unburnt municipal solid waste in various chemical forms. In the combustion process, these same materials are converted mostly to the oxide form of metals. New lead or cadmium molecules are not created during the combustion process. Practically all of the lead and cadmium remain in the ash fraction and, therefore, the landfill sees no difference in loading except for the fact that these metals are mostly in oxide form. From an environmental viewpoint, there is no

change.

8) Landfills with liners and leachate collection systems offer a much greater degree of protection than the old dumps. Landfills must be operated and maintained like any other waste disposal facility. They require constant attention, monitoring, and maintenance. In the last ten years, major improvements have been made in landfilling technology and it is now possible to construct these landfills completely above ground to preclude accidental discharge of leachate into the groundwater systems.

9) Frequent changes in laws (including tax laws), despite their good intent, create uncertainty in the marketplace and thereby extend the time required to complete the necessary projects. What is urgently needed is prompt promulgation of regulations and equitable enforcement of those regulations.

10) The program in Delaware could be considered as a national pilot program. Its success indicates that solid waste disposal problems can be resolved on a regional basis if certain steps are taken. They are:

a) The population needs to be appraised of the true cost of solid waste disposal. Substandard dumps are cheap to operate and even in Delaware the cost of disposal seemed to be negligible during the sixties and early seventies. We are now paying indirectly for cleaning that mess. Too often hidden subsidies create the impression that disposal is virtually free. A User Fee System generally conveys the true cost of the service and the users start appreciating the service.

b) There is need for an organization to implement long range plans. This involves timely decision making. The Delaware setup has removed such decision making from the normal local election process and has proven to be successful.

c) The notion that landfills are not necessary is as bad as the notion that the Congress is not necessary. Both are absolute necessities with respect to their functions.

d) Solid waste collection and disposal is an essential service for our highly affluent and industrial society. While we pursue long term goals of waste reduction and recycling, we must take steps now to safely and promptly handle the inexorable daily waste production to prevent future problems while we pursue our long range goals. It can only be done if we are willing to make some _hard decisions on siting facilities, on passing through the true cost of disposal to the user for designing, constructing, and operating environmentally sound facilities, and in enforcing the existing laws and regulations._

RECOMMENDATIONS

We respectfully recommend the following steps:

(1) Rearrange the emphasis on the use of appropriated monies by funding more support for state regulatory programs under Subtitle D. An enormous amount of money is being channeled to Subtitle C programs. _No new_ funds are necessary.

(2) Review and renew emphasis on National Materials Policy (P.L. 91-512, Title II). The report of the National Materials Policy Commission (if a copy is still available) should be updated.

(3) Direct the executive agencies, the U. S. Government Printing Office and other federal agencies to specify recycled fibre content of paper purchased for government use. The northeastern states are join-

ing together to develop common standards for paper procurement. Such action will stimulate paper companies to increase recycled fibre content in the papers.

(4) Support research for revamping our steel and metals industries to make more use of recyclable scrap.

(5) Support research and other incentives for reuse of plastics recovered from the municipal solid waste stream.

(6) Examine the sale of source separated materials to determine if we, as a nation, are subsidizing the import of paper scrap by the Pacific rim nations.

(7) Clearly define the status of ash from municipal waste incinerators under RCRA and support the controlled use of ash for construction uses, such as structural fill, road subbase, and dike construction in landfills (as fire breaks and cell dividers).

(8) Establish federal standards for metals and organic chemicals content of printing inks, paper, and plastics in order to reduce the presence of these chemicals in the ash of municipal waste. This may require a thorough examination of the packaging industry standards and materials.

(9) Establish a national deposit on all types of batteries sold in order to improve the collection for reuse or proper disposal of all types of batteries.

*Department of Environmental Quality*

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## Testimony before the
## Hazardous Waste and Toxic Substances Subcommittee
## of the
## Senate Committee on Environment and Public Works

By

Fred Hansen, Director
Oregon Department of Environmental Quality

December 3, 1987

Good morning. I am Fred Hansen, Director of the Department of Environmental Quality (DEQ) in the State of Oregon. With me this morning is Michael Downs, Administrator of the Hazardous and Solid Waste Division of DEQ. It is a pleasure to have this opportunity to talk to you about solid waste management issues. Clearly, the subject desperately needs attention.

Oregon faces the same problems in solid waste management that are plaguing every other state in the Union:

(1) Our landfill capacity is dwindling. The only general purpose landfill serving the largest metropolitan area in the state, Portland, is scheduled to close in 1991.

(2) Siting new landfills is extremely difficult and costly. No major new municipal landfills have been sited in Oregon since 1981. Our agency was charged by the Oregon Legislature with siting a new landfill for Portland after the responsible local government failed several times to site.

(3) The cost of solid waste disposal is skyrocketing. Tipping fees are expected to more than double over the next few years in the Portland metropolitan area. Closure costs for the existing landfill in Portland may exceed $20 million.

(4) Important groundwater resources are not being protected at existing landfills and contamination is very costly to clean up. Most landfills do not have adequate groundwater monitoring systems or adequate financial resources/assurance.

(5) High technology alternatives to landfilling (e.g., resource recovery facilities) are exceptionally expensive and bring their own unique set of environmental problems. Ash disposal and toxic air emissions are knotty issues that must be dealt with.

What can be done about these problems? First, the states and federal government need to develop an integrated approach to solid waste management. Most states have solid waste management programs, but the federal government, specifically EPA, isn't even on the playing field. EPA's solid waste programs were cut in the late 70's, and they are only now beginning to be involved again with very limited staff and budget.

We need a state/federal partnership if we are going to effectively deal with solid waste management. We do not need a program developed similar to the RCRA hazardous waste program where there is little for states to do other than implement a highly structured program leaving little room for professional judgment or unique state circumstances. Rather, what we need is a true sharing of the workload where EPA provides appropriate national direction for necessary uniformity, and technical support to states on issues that are too complex or costly to be resolved at the state level.

Second, we need to get serious about recycling and waste reduction. Until we do, we won't be making effective headway in solving the solid waste problem, only pushing the problem from one environmental media to another. For example, many communities are building or negotiating for construction of resource recovery facilities. Some believe they are the answer to groundwater contamination, siting, and other environmental problems associated with landfills. However, they are really only a convenient, if expensive, tradeoff of groundwater contamination for air pollution. Is one really better than the other?

This nation generates incredible amounts of waste each year, as we merrily squander our precious natural resources to feed the garbage machine. To manage this waste we are spending billions of dollars on high technology alternatives to landfilling and other costly schemes that don't fix the problem. Again, we must begin looking for ways to reduce the amount of waste generated and reusing that which is generated.

The Oregon approach to dealing with these issues relies on developing a balanced solid waste management system based on a hierarchy of solid waste management priorities. Our priorities for managing solid waste are established by statute. The first priority is to reduce the amount of solid waste generated. This is an area where the states desperately need the assistance of Congress and EPA. For example, national legislation is needed to deal with wasteful packaging practices that individual states are powerless to control due to limited market share.

Our second priority is to reuse the material for the purpose for which it was originally intended. Do we really need all these products that are designed to be used once and thrown away? Again, Congress is in the best position to deal with these practices.

Our third priority is to recycle material that cannot be reused for its original purpose without significant processing. This is an area where both the states and federal government can make significant contributions. The states need to develop innovative programs to dramatically increase the amount of residential and commercial recycling.

Oregon has the nation's first bottle bill and the Opportunity to Recycle Act. Our bottle bill has been in existence since 1971. It has widespread public support and has been very successful. More than 90 percent of our soda and beer bottles and cans are returned and recycled through a deposit system. Similar legislation at the national level, as our Senior Senator, Mark Hatfield, has championed would be of great value.

More importantly, we have the Oregon Opportunity to Recycle Act which was enacted in 1983. It provides that every Oregonian must have the opportunity to recycle. Having the opportunity to recycle means at least monthly curbside collection available for source separated recyclables in every city of 4,000 or greater population. It means that every landfill or transfer station open to the public has a recycling depot available on-site or at a more convenient location to the public. Finally, and most important, it means that every Oregonian must be made aware of these recycling opportunities, why it is important to recycle and how to do it.

Even though these two programs are very successful, we must continue to strive to improve them and develop new ones to deal with materials that aren't being recovered. An example is our new waste tire program enacted this year by the Oregon Legislature. It will provide revenues from a $1 fee on each new tire sold in Oregon to clean up old tire piles and require that waste tires be recycled to the maximum extent possible. Waste tires have a high BTU content and can be chipped to produce a valuable fuel supplement, or made into new products.

Another example is diverting yard debris from the solid waste stream to be processed into a composted soil amendment. Yard debris constitutes about 10 percent of solid waste landfilled in Portland. Currently, two companies process yard debris into compost and market it competitively with bark dust and other products. Although we are making progress in this area, much remains to be done to increase processing capacity and market demand.

I see a strong role for the federal government in recycling to complement and support state efforts. We need national legislation to deal with the rising tide of unrecyclable materials entering the waste stream. Some plastics cannot be recycled. For those that can, they must be sorted by type in order to be recycled, yet they are virtually impossible to sort without specialized training.

Color-coded labels or some other similar marking on every plastic container would be invaluable to recyclers.

EPA must finish the job of setting procurement guidelines. Purchase of recycled paper and other products by government agencies must become the norm rather than the exception. Government agencies can provide a valuable example for others to emulate.

I am sure each of you can think of many other ways that Congress can help this nation begin to break its wasteful habits. Certainly, many will say that we should just let the free marketplace determine what and when materials will be reused or recycled. Clearly, the marketplace is a powerful force that can play a large role in recycling, but the price we will pay in environmental contamination and dependency on others for resources while we wait for the marketplace to react will be great. The Islip garbage barge was only a warning, a harbinger of things to come if we do not act responsibly now.

The fourth priority in Oregon's solid waste management hierarchy is to recover energy from waste that cannot be reused or recycled. We estimate that our best efforts in waste reduction, reuse and recycling can reduce the total waste stream by approximately 50 percent. Others may want to argue that number should be higher or lower, but the important point is that a significant portion of the waste stream will remain. How are we to deal with this waste?

As you can tell from my comments so far, I have mixed emotions about whether it is better to burn or bury garbage. On one side of the equation resource recovery facilities produce useful energy resources, they destroy a significant portion of the waste stream, and they in the incineration process don't contaminate groundwater. On the other hand, they produce toxic air emissions whose effects are not well understood, they produce an ash residue that contains concentrated levels of heavy metals and other contaminates, and they are very costly to construct and maintain.

Oregon currently has one resource recovery plant located in Marion County. It was built and is operated by Ogden Martin, and has possibly the most advanced and effective air pollution control equipment on a plant of this type anywhere in the world. Even so, some question whether it is safe.

Definitive answers will only come with time and further study.

In the meantime we have ash residue that needs to be disposed of in an environmentally sound manner. Our agency, in cooperation with Ogden Martin and Marion County, has performed extensive tests on this ash residue. Thus far, we have concluded that the residue cannot be categorized as either solid waste or hazardous waste using the existing federal testing protocols.

I want to make it clear that if the ash clearly failed the EP (extraction procedure) Toxicity test, we would require that it be managed as hazardous waste. However, it is our contention that the EP Toxicity test is ill suited to determine the hazardous characteristics of this unique waste stream. On the other hand, if the ash residue clearly passed the EP Toxicity test, we would not allow it to be co-disposed with municipal solid waste.

This may seem like a confusing statement, but it makes sense when you realize that the EP Toxicity test cannot provide definitive answers to questions about how ash residue should be managed. First, it assumes the residue will be co-disposed with municipal waste and therefore subjected to an acidic environment. That is a poor assumption, though, when the ash is disposed in a monofill as it is in Oregon.

Second, it artificially lowers the pH of the sample to a point where lead is easily leached out of the sample. However, the ash residue at the Oregon plant has a high pH due to lime being used in the air pollution control equipment. Lead is also more mobile at high pH and the test protocol should try to simulate the environment the waste will encounter in a monofill. It will be subjected to rainwater not acidic leachate. A better test would use rainwater as the leaching medium.

We are currently developing a test protocol that we believe will appropriately characterize the hazardous nature of ash residue and allow us to determine the best management practices for handling this material. In the meantime, we are requiring that the residue be stored in monofills designed with liners, leachate collection and treatment and groundwater monitoring.

Our objective is protection of the environment and public health from the adverse effects of ash residue, not blind adherence to a test protocol that is inappropriate for this use. EPA has been supportive of our efforts and has allowed us the flexibility to develop appropriate methods to manage the residue.

We also support EPA's current efforts to develop Subtitle D regulations to manage this waste as a special solid waste. Currently, federal regulations would allow ash residue to be co-disposed with municipal solid waste if it passes the EP Toxicity test. Obviously, further federal regulations are needed if this undesirable result is to be avoided.

The last priority in Oregon's solid waste management hierarchy is to landfill or incinerate any remaining waste that cannot be managed by one of the higher priorities. This recognizes that landfilling is necessary even after our best efforts have been made to eliminate, reuse, recycle or recover resources from solid waste.

My final thoughts for you are that we must recognize the need for and desirability of a balanced solid waste management system. We need a combination of waste reduction, recycling, resource recovery and landfilling to best manage our wastes. There is no magic black box that is going to solve this complex problem for us. We would be foolish to put all our faith in one solid waste management method.

By working together as partners, the states and federal government can solve our solid waste dilemma. It won't be easy, but it will be rewarding.

Thank you. I would be happy to answer your questions.

TESTIMONY OF

THOMAS C. JORLING

COMMISSIONER

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

ALBANY, NEW YORK 12233

BEFORE THE

UNITED STATES SENATE HAZARDOUS WASTE AND TOXIC SUBSTANCES

SUBCOMMITTEE ON MANAGEMENT OF MUNICIPAL SOLID WASTE

DIRKSEN SENATE OFFICE BUILDING (ROOM 406)

WASHINGTON, D.C. 20510-5175

DECEMBER 3, 1987

MR. CHAIRMAN, I AM THOMAS C. JORLING, COMMISSIONER OF ENVIRONMENTAL CONSERVATION IN NEW YORK STATE.

THANK YOU FOR THE OPPORTUNITY TO PARTICIPATE IN THIS HEARING. I WOULD LIKE TO DISCUSS THE CURRENT AND FUTURE FEDERAL AND STATE ROLES IN IMPLEMENTING A COMPREHENSIVE OVERALL SOLID WASTE MANAGEMENT STRATEGY.

NEW YORK STATE AND THE NATION FACE A SOLID WASTE DISPOSAL CAPACITY CRISIS. CURRENTLY, MORE WASTE IS BEING PRODUCED THAN CAN BE PROPERLY MANAGED. THE CRISIS WILL SOON INTENSIFY UNLESS ACTIONS ARE TAKEN TO REDUCE THE AMOUNT OF WASTE BEING GENERATED AND TO SAFELY MANAGE AND DISPOSE OF THE REMAINING WASTE. ALL LEVELS OF GOVERNMENT - FEDERAL, STATE AND MUNICIPAL - MUST TAKE ACTIVE ROLES IN SOLVING THIS PROBLEM. THOSE ROLES SHOULD BE DIFFERENT, BUT THE PERFORMANCE OF ALL THREE WILL BE NECESSARY IF THE PROBLEM IS TO BE ATTACKED SUCCESSFULLY.

MUNICIPAL WASTE DISPOSAL PRACTICES MUST CHANGE. CITIES, TOWNS, AND VILLAGES WILL HAVE TO LESSEN THEIR DEPENDENCE ON LANDFILLS FOR SOLID WASTE DISPOSAL AND RETHINK HOW TO SAFELY HANDLE AND DISPOSE OF THEIR WASTE. NEW YORK STATE HAS BEEN AWARE OF THIS GROWING CAPACITY CRISIS AND THE NEED TO SHIFT TO OTHER ALTERNATIVES FOR SOME TIME.

THE UNDERLYING PROBLEM REFLECTS OUR SOCIETY'S EXCESSIVE THROW-AWAY HABITS. THE TRADITIONAL MEANS TO HANDLE OUR THROW-AWAYS, STRICTLY LANDFILL DISPOSAL ORIENTED, ARE NO LONGER VIABLE. WE MUST SHIFT OUR EMPHASIS TO REDUCE SOCIETY'S WASTEFULNESS AND RECOVER AS MUCH OF OUR SOLID WASTE AS POSSIBLE IN RECLAIMED MATERIALS AND ENERGY RESOURCES. WE MUST PERSUADE PEOPLE TO ABANDON THE THROW-AWAY ATTITUDE, TO RECLAIM AND REUSE ALL THAT WE ARE ABLE. WE MUST ALTER THE DESIGN OF CONSUMER PRODUCTS TO FACILITATE FUTURE RECYCLING AND TO ELIMINATE THOSE FEATURES THAT CONSTITUTE REAL WASTE. NEW YORK'S BEVERAGE CONTAINER DEPOSIT LAW WHICH REQUIRES REINTRODUCING A PORTION OF THE WASTE STREAM MATERIAL BACK INTO THE MARKET TO BE REUSED IS A SUCCESSFUL EXAMPLE OF THIS APPROACH.

MAJOR EFFORTS TAKEN BY NEW YORK STATE TO DATE, INCLUDE:

- THE NEW YORK STATE 1972 ENVIRONMENTAL QUALITY BOND ACT WHICH CONTAINS LIMITED FUNDS - $175 MILLION TO ASSIST WITH THE CONSTRUCTION OF WASTE-TO-ENERGY FACILITIES AND PURCHASE OF LANDFILL AND RECYCLING EQUIPMENT.

- THE LONG ISLAND LANDFILL LAW SIGNED BY GOVERNOR CUOMO IN 1983, THAT MANDATES PHASEOUT OF LANDFILLS IN THE DEEP FLOW AQUIFER RECHARGE ZONES ON LONG ISLAND AND THEREBY ENCOURAGES TRANSITIONS TO WASTE REDUCTION, RECYCLING, AND RESOURCE RECOVERY.

- THE SENSITIVE AQUIFER POLICY WHICH RESTRICTS THE CONSTRUCTION OF NEW LANDFILLS AND CALLS FOR THE PHASEOUT OF INADEQUATELY DESIGNED LANDFILLS OVER EXISTING AND POTENTIAL PUBLIC GROUNDWATER SUPPLIES IN UPSTATE NEW YORK.

- THE NEW YORK STATE ENVIRONMENTAL QUALITY BOND ACT OF 1986 WHICH PROVIDES $100 MILLION IN NO-INTEREST LOANS TO COVER 50 PERCENT OF THE COST OF PROPER CLOSURE OF LANDFILLS WHICH ARE FOUND TO BE INACTIVE HAZARDOUS WASTE DISPOSAL SITES.

THE STATE LEGISLATURE HAS AUTHORIZED ONE-TIME FUNDING OF PROGRAMS ($10 MILLION TOTAL) IN CONNECTION WITH A RECENT SETTLEMENT OF FEDERAL DEPARTMENT OF ENERGY LITIGATION INVOLVING THE STRIPPER WELL PETROLEUM OVERCHARGE RECOVERIES:

- ESTABLISH A WASTE COMBUSTION INSTITUTE AFFILIATED WITH HIGHER EDUCATION TO CONDUCT AND MONITOR WASTE COMBUSTION RESEARCH AND DEVELOPMENT: $5.0 MILLION.

- IMPLEMENT A SECONDARY MATERIALS UTILIZATION PROGRAM TO PROMOTE ENERGY CONSERVATION AND STIMULATE INDUSTRIAL DEVELOPMENT ACTIVITIES: $2.5 MILLION.

- IMPLEMENT A LOCAL RESOURCE AND REUSE DEVELOPMENT PROGRAM TO ENCOURAGE RECYCLING, WASTE COMPOSTING STUDIES, AND PUBLIC EDUCATION PROGRAMS: $2.0 MILLION.

- WASTE OIL MANAGEMENT AND REUSE PROGRAM: PROVIDE 50 PERCENT MATCHING GRANTS FOR TECHNOLOGY ASSESSMENTS AND FEASIBILITY STUDIES: $500 THOUSAND.

THE DEPARTMENT ISSUED THE NEW YORK STATE SOLID WASTE MANAGEMENT PLAN LAST APRIL. THE PLAN COVERS A TEN YEAR PLANNING PERIOD FROM 1987 TO 1997. THIS PLAN WILL BE UPDATED ANNUALLY TO INCORPORATE CHANGING SOLID WASTE MANAGEMENT ISSUES AND ACTIONS. THIS PLAN SETS SOME DRAMATIC NEW DIRECTIONS FOR SOLID WASTE MANAGEMENT, PRINCIPALLY A SHIFT AWAY FROM LANDFILLING IN THE NEXT DECADE IN FAVOR OF WASTE REDUCTION, RECYCLING, AND ENERGY RECOVERY. IT SETS A GOAL OF DECREASING THE MUNICIPAL WASTE STREAM BY 50 PERCENT THROUGH WASTE REDUCTION AND RECYCLING/REUSE. THE PLAN PROPOSES MORE ACTIVE ROLES FOR BOTH STATE AND LOCAL GOVERNMENT AND EMPHASIZES A WASTE REDUCTION APPROACH THAT WOULD REQUIRE LEGISLATIVE ACTIONS AND CITIZEN INVOLVEMENT.

NEW YORK STATE SUPPORTS THE DRAFT TECHNICAL REQUIREMENTS PROPOSED THROUGH SUBTITLE D CRITERIA REVISION, 40 CFR PART 258. THROUGH THE SUBTITLE D WORK GROUP, WE SUPPORT THE GOALS TO ENCOURAGE ENVIRONMENTALLY SOUND WASTE MANAGEMENT PRACTICES, MAXIMIZE THE REUSE OF RECOVERABLE RESOURCES AND FOSTER RESOURCE RECOVERY. WE STRONGLY SUPPORT THE CONCEPT OF APPLYING THE CRITERIA TO ALL MUNICIPAL SOLID WASTE DISPOSAL FACILITIES. WE ARE ALSO COMPREHENSIVELY REVISING LANDFILL REGULATIONS TO PROVIDE STATE-OF-THE-ART REQUIREMENTS FOR LOCATION, DESIGN AND OPERATION OF SOLID WASTE MANAGEMENT FACILITIES.

THERE ARE AT LEAST THREE AREAS OF THE SOLID WASTE PROBLEM THAT WE BELIEVE ARE BEST HANDLED BY THE FEDERAL GOVERNMENT. THEY ARE:

1. HELPING CONTROL SMALL QUANTITY HAZARDOUS SUBSTANCES THAT ENTER THE MUNICIPAL WASTE STREAM, PRINCIPALLY THROUGH HOUSEHOLD AND SMALL RETAIL BUSINESSES.

2. WORKING WITH BUSINESS AND INDUSTRY TO CHANGE BOTH THE COMPOSITION OR MAKE-UP AND THE QUANTITY OF MATERIALS THAT EVENTUALLY ENTER THE MUNICIPAL WASTE STREAM.

3. HELPING IMPROVE MARKET DEMAND FOR MATERIALS SEPARATED OR EXTRACTED FROM THE MUNICIPAL WASTE STREAM.

I SELECT THESE THREE AREAS FOR A MORE ACTIVE FEDERAL ROLE IN DEALING WITH THE NATIONAL SOLID WASTE ISSUE BECAUSE:

(A) THEY ARE CRITICALLY IMPORTANT TO THE ESTABLISHMENT OF MORE ACCEPTABLE SOLID WASTE MANAGEMENT PRACTICES NATIONWIDE;

(B) THE FEDERAL GOVERNMENT IS IN A POSITION TO DEAL WITH THESE THREE AREAS MOST EFFECTIVELY SINCE EACH OF THEM ENTAILS EITHER THE MODIFICATION, ELIMINATION, OR IDENTIFICATION OF PRODUCTS AND CONTAINERS THAT MOVE AND ARE SOLD IN INTERSTATE COMMERCE; AND

(C) LEFT TO THEIR OWN DEVICES, STATES AND MUNICIPALITIES WHO ARE FORCED TO DEVELOP POLICIES UNILATERALLY IN THESE AREAS RUN THE RISK OF INTERFERING WITH INTERSTATE COMMERCE, OR OF CREATING PRICE AND BUSINESS PRACTICE DISTORTIONS IN THEIR RESPECTIVE ECONOMIES, OR BOTH.

I'LL JUST SUMMARIZE MY RATIONALE FOR PREFERRING VIGOROUS FEDERAL INITIATIVES IN EACH AREA. MANY CONSUMER GOODS AND RETAIL BUSINESS MATERIALS LIKE PAINTS, PESTICIDES, DRY CLEANING MATERIALS, UNUSUAL PHARMACEUTICAL PRODUCTS, LEAD IN NEWSPRINT, SHREDDED WHITE GOODS, AND DISCARDED HOUSEHOLD APPLIANCES FIND THEIR WAY INTO THE MUNICIPAL WASTE STREAM AND EVENTUALLY TO LANDFILLS AND RESOURCE RECOVERY PLANTS. WHEN THEY ARE CONCENTRATED IN LARGE QUANTITIES IN THESE FACILITIES, THEY POSE SERIOUS PUBLIC HEALTH AND ENVIRONMENTAL DEGRADATION PROBLEMS.

IF STATES AND MUNICIPALITIES ARE EXPECTED TO ADOPT BETTER WASTE PRACTICES LIKE SEPARATION AND RECYCLING, WE NEED CONSISTENT AND CONVENIENT WAYS TO HELP HOUSEHOLDERS, SMALL BUSINESSES, AND LOCAL WASTE MANAGERS TO IDENTIFY THE ITEMS THAT SHOULD BE HANDLED SEPARATELY BECAUSE THEY POSE THESE POTENTIAL HAZARDS. ALTERNATIVES ARE TO PROHIBIT THEIR MOVEMENT IN INTERSTATE COMMERCE, OR TO REDESIGN THE PRODUCTS SO ITS HAZARDOUS POTENTIAL IS ELIMINATED. IN ANY CASE, THE IDENTIFICATION POLICIES, PROHIBITION ACTIONS, OR REDESIGN INITIATIVES ARE BEST HANDLED AT THE FEDERAL LEVEL, IN THE INTEREST OF BOTH CONSISTENCY AND ECONOMIC EFFICIENCY.

THE AREAS OF PRODUCT AND CONTAINER OR PACKAGING REDESIGN OFFER THE MOST PROMISING LONG TERM HOPE FOR RESOLUTION OF MUCH OF OUR SOLID WASTE PROBLEM. WHETHER IT IS THE REDUCTION OF PACKAGING EXCESS, THE REDESIGN OR REFABRICATION OF PRODUCTS OR PACKAGING THAT DO NOT BIODEGRADE QUICKLY, OR THE REDESIGN OF PRODUCTS TO FACILITATE THEIR EASY RECYCLING AND REMANUFACTURE, THE INITIATIVES AND POLICIES DESIGNED TO ACHIEVE THESE OBJECTIVES ARE BEST UNDERTAKEN AT THE NATIONAL LEVEL. CONSISTENCY AND ECONOMIC EFFICIENCY ARE THE PRINCIPAL REASONS FOR FEDERAL ACTION HERE, AS THEY ARE IN THE AREA OF HOUSEHOLD HAZARDOUS MATERIALS.

PROGRESS IN THIS AREA WILL DEPEND A GREAT DEAL UPON THE COOPERATION OF BUSINESS. EVEN-HANDEDNESS AND CONSISTENCY NATIONWIDE ARE IMPORTANT INGREDIENTS OF A SUCCESSFUL COOPERATIVE PROGRAM WITH BUSINESS TO PURSUE THESE OBJECTIVES. THIS COMES BEST FROM A SINGLE SOURCE - STRONG, CLEAR FEDERAL LEADERSHIP.

IN THE THIRD ARE, THE REINTRODUCTION OF SECONDARY MATERIALS INTO THE MANUFACTURING MARKET - MUNICIPALITIES AND STATES ARE SUBJECT TO THE WHIM, HABITS AND PROPENSITIES OF THE BUSINESS SYSTEM FUNCTIONING IN WHAT IS ESSENTIALLY A NATIONAL MARKETPLACE. IF SEPARATION AND RECYCLING ARE TO BECOME ESTABLISHED AS REAL ALTERNATIVES TO TODAY'S THROW-AWAY SYSTEM OF SOLID WASTE MANAGEMENT, MUNICIPALITIES AND STATES MUST HAVE SOME CONFIDENCE THAT THE SEPARATED MATERIALS THEY WILL COLLECT AND INVENTORY WILL IN FACT MOVE BACK INTO INDUSTRIAL MATERIALS MARKETS. THERE IS NO ASSURANCE OR EVIDENCE NOW THAT IF STATES AND LOCALITIES NATIONWIDE, OR EVEN THOSE IN NEW YORK STATE, SHIFT ENTIRELY TO RECYCLING PRACTICES, THAT THE MILLIONS OF TONS OF SEPARATED NEWSPAPERS, GLASS, OFFICE PAPER, METALS AND PLASTIC THAT WILL ACCUMULATE IN A FEW WEEKS WILL FIND MARKET OUTLETS. IF IT DOESN'T FAITH IN THE ENTIRE SYSTEM WILL BE UNDERMINED, AND THE PRACTICAL REALITIES WILL FORCE US TO REVERT TO LESS DESIRABLE PRACTICES.

FEDERAL LEADERSHIP IN THIS AREA - AGAIN BECAUSE WE ARE DEALING WITH BUSINESS IN AN INTERSTATE ECONOMY - WILL BE ESSENTIAL TO HELP RESHAPE BUSINESS ATTITUDES TO USE SECONDARY MATERIALS IN THEIR MANUFACTURING PROCESSES. THIS REQUIRES FIRST A THOROUGH RE-EXAMINATION OF FEDERAL POLICIES LIKE DEPLETION ALLOWANCES AND OTHER ELEMENTS OF TAX AND TRADE POLICY THAT MAY FAVOR THE USE OF VIRGIN RATHER THAN SECONDARY MATERIALS BY INDUSTRY. SECOND, IT REQUIRES THE CAREFUL CREATION OF POSITIVE POLICIES THAT PROVIDE INCENTIVES FOR THE USE OF SECONDARY MATERIALS IN OUR MANUFACTURING SYSTEM.

HERE AGAIN CLOSE AND POSITIVE COOPERATION WITH BUSINESS, AND CONSISTENCY RATHER THAN PATCHWORK NATIONAL POLICY WILL PRODUCE THEM OPTIMUM RESULTS. A STRONG FEDERAL INITIATIVE IN THIS AREA OFFERS THE GREATEST PROMISE FOR THAT KIND OF RESULT.

STATES AND MUNICIPALITIES HAVE VERY SIGNIFICANT ROLES TO PLAY IN ATTACKING THE SOLID WASTE PROBLEM. BUT EFFECTIVE CONTRIBUTIONS TO CRITICAL ELEMENTS OF A REAL SOLUTION CAN ONLY COME FROM THE FEDERAL GOVERNMENT. I HAVE OUTLINED THESE IN WHICH I BELIEVE THE FEDERAL ROLE IS ESSENTIAL AND MOST IMPORTANT.

# TESTIMONY BEFORE THE
# HAZARDOUS WASTE AND TOXIC SUBSTANCES SUBCOMMITTEE
# OF THE
# SENATE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

Councilwoman Virginia Galle
City of Seattle
December 3, 1987

Good Morning. I am Virginia Galle, a member of the Seattle City Council and Chairperson of the Environmental Management Committee.

I would like to tell you about how the City of Seattle is currently managing our solid waste, the difficult decisions we face in the near future, and where we need help from the federal government. Our goal is to achieve an integrated solid waste management system where as much as possible is recycled or composted, and only what can't be recycled is burned or otherwise disposed. That sounds simple, but getting there will not be easy. We start from a system which relies exclusively on private sector recycling without government support, two transfer stations operated by the City and two operated by garbage companies, and disposal at a County-owned landfill.

This is the first year that the City has not had control over all parts of the solid waste management system. In the last two years, the City has had to close both of its landfills. One is a superfund site; the other may become one. We will be paying more than $75 million in order to properly clean up and close those landfills. We are indeed learning the "true cost" of landfilling.

The City contracts for collection of residential garbage, but has chosen not to regulate commercial collection, leaving the rate setting to the State utility regulatory agency. Next year we will be considering whether it would be best to take over regulation of the commercial haulers in order to achieve more recycling in the commercial sector.

We are beginning to prepare an environmental impact statement to evaluate a broad range of disposal options, including committing our waste to either the county or the Tulalip Indian Tribes for energy recovery, or to build our own energy recovery facility. In addition, the EIS will assess recycling and waste reduction potentials, with the assumption that the City would be willing to spend an amount for waste reduction and recycling equal to what it would pay for energy recovery. The EIS will also evaluate various mechanical sorting facilities which could be used in front of energy recovery (either refuse derived fuel or mass burn).

But we haven't waited on these decisions to begin stepping up our recycling efforts. The City today recycles 22% of its solid waste, one of the best rates in the nation. This recycling is being done through private industry efforts at buy-backs and drop-off recycling centers and commercial sector recycling. The City Council has adopted a goal of 40% recycling by 1997, and 50% recycling by 2010. To achieve our goal, we will implement a multi-faceeted approach to the various types of materials and generators. In February we will begin a city-wide curbside recycling program. It will be the largest curbside recycling program in the nation. The City has been divided into two sectors, and two different types of recycling systems will be offered. In one sector, each household will be offered three stackable plastic bins. Households will be asked to put glass, tin cans, and aluminum into one bin, newspaper into another, and mixed wastepaper into the third. The recyclables will be collected weekly, probably the same day as garbage service.

In the other half of the City, each household will be offered a 90 gallon plastic container with wheels. The household will put all the recyclable materials commingled in the container. Collection will be once a month.

The winning contractors bid these quite different recycling systems. We believe that they have offered us an invaluable opportunity to test and compare the two systems to determine which accomplishes the most recycling.

In addition to the curbside program which begins in just a few months, we are studying which collection, processing and marketing systems for yard waste are most feasible in order to obtain our goal of composting 75% of the City's yard waste. We anticipate obtaining a state grant, with City match, to allow us to hire a person to work exclusively on facilitating multi-family housing recycling. As I mentioned before, we are also looking at how to best accomplish more commercial sector recycling. And we are in the midst of a rate study which, among other things, will look at ways to encourage waste reduction and recycling through rates.

In summary, we are beginning to put our money where our mouth is - spending money on recycling, our highest priority waste management tool.

How can the federal government help us? Of course EPA might have had guidelines or standards for siting and operation of landfills, perhaps saving us from the environmental damage caused and the horrendous expense of trying to fix it. But bygones are bygones - and we must move forward. So what can EPA do for us now?

1. EPA can anticipate our needs and do the scientific research necessary to resolve the uncertainties we face as we move forward. For example, the City will soon be making a decision on what processing and/or burning technology to use if

the City decides not to turn over its wastestream to the County. One of the largest uncertainties, and an issue that could influence our decision, is how to manage the ash. EPA is following, not leading the States on this issue. Why isn't EPA in the lead? This is an issue all States face. There is no reason why each State must do its own research and set up its own regulations, especially when EPA is very likely to come along behind them and change the rules. We need regulatory certainty based on good scientific research.

2. EPA can fund the research and development of collection systems and recycling processes for difficult to recycle materials such as batteries and plastics. These are materials that need to be kept out of a burner, but how do we recycle them safely and efficiently?

3. EPA can strengthen recycling markets by getting on with adoption of aggressive procurement guidelines which will help federal, state and local governments set up successful programs to procure supplies made of recycled materials. The City of Seattle prints letterhead, envelopes, and xerographic copies on 100% recycled paper without any sacrifice to quality. Procurement preference should be given to products containing high percentages of recycled material.

4. EPA can provide technical assistance to local governments on how to best set up an integrated solid waste management system.

5. Federal monies should be spent according to the solid waste management priorities. If, as the Resource Conservation and Recovery Act established more than ten years ago, the nation's choice as best management tool is recycling, then EPA should be allocating its solid waste management resources accordingly.

Finally, and perhaps most importantly, we need action from Congress itself to help reduce the amount of waste being generated and to curb the rapid transition from recyclable packaging to nonrecyclable packaging. The City Council of Seattle in October adopted a resolution to support State legislation which would

> "ban the use of non-recyclable packaging materials in the state (plastic grocery bags, styrofoam fast food containers, and certain types of beverage containers). All of these items are not recyclable and can produce toxic material if burned. Additionally, the use of mixed packaging materials, like paper-plastic and paper-aluminum, could be banned, since these combinations also are not recyclable."
>
> Resolution 27679

We do not yet know what form this legislation will take.

Packaging regulation is a difficult issue to take up at the State level. This is a national problem that needs to be solved at the federal level. Local governments cannot plan and efficiently and safely operate a waste management system for unknown materials. We know how to recycle and have markets for glass, aluminum and paper. But what if, in a few years, the package of choice is plastic? Then what? What if the plastics are combined with aluminum or paper or even other noncompatible plastics? At the least, the federal government should demand designing for recycling. Or perhaps it is time to decide to ban certain products which are incompatible with the nation's waste management systems. Other nations have done that. A number of European countries allow only certain types of containers, and in only certain sizes so that they can be reused or recycled. This country used to have that sort of system, though it wasn't done by regulation. There were standard glass milk bottles, soda bottles, and beer bottles. Sometimes the old days really were better.

Please take a serious look at how to stem the tide of more and more packaging, and much of it nonrecyclable. Stopping the source of the pollution is always better than treating it, which is all we are doing now.

I have appended to my testimony the solid waste policies adopted by the National League of Cities. They call for full funding of RCRA, additional legislation to support local governments in their waste management efforts, and federal regulation of packaging and a national bottle bill.

Thank you for the opportunity to testify today. I'd be glad to answer any questions you may have about Seattle's solid waste management system.

## 2.04 SOLID AND HAZARDOUS WASTE

### *A. Problems*

The disposal of wastes and the conservation of resources are two of the most challenging problems to be solved by this nation. With almost half of our cities running out of current disposal capacity in the next two to three years, America's urban areas face an immediate disposal crisis.

Additionally, the improper disposal of hazardous waste and the spills of chemicals, oils, and other hazardous substances as the result of highway, rail and waterway accidents are national problems which can endanger public health and pollute our nation's air, water and land resources. A solution to the hazardous waste and materials problem will require the cooperation of federal, state and local governments as well as the hazardous waste generating industries and materials transporting industries.

### *B. Goals*

The crisis of solid waste management must be solved through an aggressive program of source reduction, volume reduction, resource recovery, and ultimate disposal—all of which must be compatible with the environment.

A national hazardous wastes and materials management strategy must be developed in order to protect human health and the environment. The strategy should encompass the entire life of the waste and material, from preproduction to transportation and temporary storage to final disposition.

### *C. Solid Waste Policies*

#### *1. Funding*

Congress must fully fund the Solid Waste Disposal Act and the Resource Recovery Act to assure adequate support for research to demonstrate better solid waste management methods, and to provide necessary support for local governments in planning and implementing solid waste management systems. Federal funding is also needed to stimulate development and application of scientific and technical advances in solid waste management and resource recovery.

Congress should enact additional legislation to broaden assistance for the construction and acquisition of solid waste receiving, processing and disposal facilities, and should provide the mechanism for the creation of regional sites.

Congress should authorize and appropriate additional federal financial assistance to municipal solid waste disposal facilities to meet the costs of compliance with federally-mandated landfill criteria or to pay for closure of the facility. Federal assistance should also be available for new site feasibility studies and site planning and design for facilities which are required to cease operation. Congress should enact legislation which encourages the use of environmentally-safe waste disposal and recycling technologies that are alternatives to landfills.

Where the municipality has made a good faith effort to find an alternative disposal method, EPA should be required to give conditional approval to the alternative method before the existing disposal facility is ordered to close.

#### *2. Program Selection*

Examination of the relative costs and benefits of various solid waste management programs—resource recovery, waste reduction, and development of biodegradable products—should occur at a local or regional level and be selected on the basis of their acceptability, appropriateness, and benefit to a particular area and its need for resource conservation.

#### *3. Technology Evaluation*

Congress should require that all solid waste systems and processes developed under the Solid Waste Disposal Act and the Resource Recovery Act be evaluated on a localized comparative cost/benefit basis and that the results of such an evaluation be made available to cities on a continuing basis. Such an evaluation should reflect the ways in which the systems and processes can be best used by cities and private enterprise in solving waste disposal problems.

#### *4. Research and Development*

Congress should find research, development, and demonstration efforts to stimulate energy recovery from solid waste, including the provision of financial assistance for needed anti-pollution equipment.

Research should be accelerated to develop biodegradable packaging and recycling of potentially useful waste materials.

#### *5. Federal Regulation*

Programs must be initiated by government and private industry to control manufacturing and packaging practices which contribute significantly to solid waste disposal problems, and to energy and resource consumption. In particular, packaging petroleum products should receive top priority for curtailment by government and private industry.

Federal regulatory resource conservation measures, including the establishment of federal packaging standards and a national system of mandatory deposits on beverage containers, should be supported.

To help local governments support improved solid waste management systems, the federal government should impose taxes on, regulate, and where necessary, prohibit, disposable goods and other practices which aggravate solid waste management difficulties or consume extravagant amounts of resources and energy.

A system of disposal charges with recycling credits should be initiated until methods to internalize these costs are adopted. However, limited and temporary tax incentives should be initiated at the national and state level to encourage the recycling of solid waste materials.

#### *6. Waste-To-Energy*

Congress should require the integration of solid waste energy recovery studies with general energy conservation planning and studies.

#### *7. Mining Wastes*

Federal, state, and local governments should enact legislation requiring strip, other mining and displacement operations to restore the surface land and to dispose of their waste in a manner that avoids the harmful effects of any pollution.

## RESOLUTION #7

## PETITION TO THE UNITED STATES CONGRESS FOR A NATIONAL RECYCLING POLICY

WHEREAS, we live in a world of finite resources where society cannot be sustained without careful conservation of natural resources; and

WHEREAS, inadequate attention to resource recycling is contributing to resource depletion, air and water pollution, and economic inefficiency; and

WHEREAS, the materials discarded daily in the United States could help assure availability of basic materials for our manufacturing industry; and

WHEREAS, American recycling industries, a major source of raw materials, are forced to compete with heavily subsidized virgin materials extraction and processing industries; and

WHEREAS, the states and cities could reduce their expensive burden of solid waste by one-third to one-half in markets for recyclable materials; and

WHEREAS, a National Recycling Policy could encourage the growth of markets for recyclable materials;

NOW, THEREFORE, BE IT RESOLVED that the National League of Cities petitions the President and Congress of the United States to instruct the administrative agencies and departments, including the Environmental Protection Agency and the Departments of Interior, Commerce, Agriculture, and Treasury to prepare recommendations and guidelines establishing a National Recycling Policy utilizing data already developed by the Council on Environmental Quality, the National Commission on Supplies and Shortages, and the National Commission on Materials Policy.

BE IT FURTHER RESOLVED that this policy shall encourage and provide incentives for the development and use of goods produced from recycled materials and reduce unfair competition from and subsidies for non-renewable resources industries.

*Approved by the Membership of the National League of Cities*
*Annual Business Meeting • December 3, 1986 • San Antonio*

NATIONAL
ASSOCIATION
of
COUNTIES

*440 First St. NW, Washington, DC 20001*
*202/393-6226*

STATEMENT OF

THE HONORABLE HARVEY RUVIN
COMMISSIONER, DADE COUNTY, FLORIDA
BOARD OF COUNTY COMMISSIONERS
AND
PRESIDENT, NATIONAL ASSOCIATION OF COUNTIES

BEFORE THE
SUBCOMMITTEE ON HAZARDOUS WASTES AND TOXIC SUBSTANCES
SENATE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

ON BEHALF OF
THE NATIONAL ASSOCIATION OF COUNTIES
Washington, D.C.
December 3, 1987

THANK YOU MR. CHAIRMAN AND MEMBERS OF THE SUBCOMMITTEE FOR THE OPPORTUNITY TO TESTIFY ON THE ROLE PLAYED BY COUNTY GOVERNMENTS IN ADDRESSING THE NATION'S GROWING SOLID WASTE MANAGEMENT PROBLEM. MY NAME IS HARVEY RUVIN, I AM PRIVILEGED TO SERVE AS PRESIDENT OF THE NATIONAL ASSOCIATION OF COUNTIES,* AND AS AN ELECTED COUNTY COMMISSIONER FROM DADE COUNTY, FLORIDA.

FIRST OF ALL, ON BEHALF OF AMERICA'S 3,106 COUNTIES, I WANT TO EXPRESS OUR APPRECIATION TO YOU FOR FOCUSING ATTENTION ON AN ISSUE THAT IS TRULY APPROACHING CRISIS PROPORTIONS IN ALMOST EVERY SECTION OF THE COUNTRY. ALTHOUGH WE ALL FOLLOWED THE ODYSSEY OF THE GYPSY GARBAGE BARGE ON AN EXTENDED CARIBBEAN CRUISE WITH A MIXTURE OF FASCINATION AND HORROR, WE CONTINUE TO LIVE UP TO OUR DUBIOUS REPUTATION AS THE WORLD'S PREMIER

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*ESTABLISHED IN 1935, THE NATIONAL ASSOCIATION OF COUNTIES IS THE ONLY NATIONAL ORGANIZATION REPRESENTING COUNTY GOVERNMENT IN THE UNITED STATES. THROUGH ITS MEMBERSHIP, URBAN, SUBURBAN AND RURAL COUNTIES JOIN TOGETHER TO BUILD EFFECTIVE RESPONSIVE COUNTY GOVERNMENT. THE GOALS OF THE ORGANIZATION ARE TO: IMPROVE COUNTY GOVERNMENT; SERVE AS THE NATIONAL SPOKESMAN FOR COUNTY GOVERNMENT; ACT AS A LIAISON BETWEEN THE NATION'S COUNTIES AND OTHER LEVELS OF GOVERNMENT; ACHIEVE PUBLIC UNDERSTANDING OF THE ROLE OF COUNTIES IN THE FEDERAL SYSTEM.

THROW-AWAY" SOCIETY, DISPOSING OF ABOUT 1 TON OF GARBAGE ANNUALLY FOR EVERY MAN, WOMAN, AND CHILD IN THE UNITED STATES. NO ONE KNOWS THE DEVASTATING CONSEQUENCE OF THOSE HABITS MORE THAN WE DO ON THE LOCAL COUNTY LEVEL. AFTER ALL, IT IS THE LOCAL OFFICIAL--IN TOWNS, CITIES AND COUNTIES--WHO IS CHARGED WITH THE RESPONSIBILITY FOR DISPOSING OF THAT WASTE IN A CLIMATE OF COMMUNITY OPPOSITION, STATE-IMPOSED LIMITS, UNCERTAIN FEDERAL REGULATIONS, AND ENVIRONMENTAL CONCERN. IT IS OUR TRUCKS THAT ROLL AT DAWN EACH DAY; WE OPERATE THE LANDFILLS AND INCINERATORS; AND WE ARE THE ONES WHO MUST FACE A SUSPICIOUS AND OFTEN HOSTILE PUBLIC THAT TAKES OUT THE GARBAGE, AND THEN DOES NOT WANT TO SEE IT AGAIN.

AS A RESULT OF OUR MEMBERS' DAILY EXPERIENCES AS THE NATION'S GARBAGE COLLECTORS, WE HAVE, AS AN ASSOCIATION, GIVEN A GREAT DEAL OF THOUGHT TO WHAT THIS COUNTRY SHOULD BE DOING TO MANAGE AND SAFELY DISPOSE OF THE MT. EVERESTS OF GARBAGE COLLECTED EVERY YEAR, AND TO THE CONSTRUCTIVE ROLE THE FEDERAL GOVERNMENT CAN PLAY TO ASSIST US. AT OUR 52ND ANNUAL NATIONAL CONFERENCE IN JULY, THE FULL NACo MEMBERSHIP ADOPTED A NEW ENVIRONMENTAL POLICY WHICH CALLS UPON COUNTIES TO EMPHASIZE WASTE REDUCTION, RECYCLING, AND RESOURCE RECOVERY FACILITIES AND TO MOVE AWAY FROM THE CONVENTIONAL LANDFILL AS THE PRIMARY MEANS OF SOLID WASTE DISPOSAL. I HAVE TAKEN THE LIBERTY OF ATTACHING THAT SECTION OF OUR AMERICAN COUNTY PLATFORM TO MY WRITTEN TESTIMONY, AND I WOULD APPRECIATE IT BEING INCLUDED IN THE RECORD.

THE NACo POLICY ASSIGNS THE HIGHEST PRIORITY TO WASTE REDUCTION AND RECYCLING EFFORTS. THESE VALUES MUST BECOME AS MUCH A PART OF INDUSTRY'S MARKETING STRATEGIES AS BUBBLE PACKS AND PLASTIC SQUEEZE BOTTLE CONTAINERS. WHILE THESE EFFORTS CAN BE ENCOURAGED ON THE LOCAL, STATE AND NATIONAL LEVELS BY THE ADOPTION OF "BOTTLE BILLS," BY MANDATING SOURCE SEPARATION AND BY SUPPORTING COMMUNITY RECYCLING EFFORTS, WE NEED MORE THAN A LITTLE HELP FROM OUR FRIENDS IN WASHINGTON. WE BELIEVE THAT THE FEDERAL GOVERNMENT SHOULD UNDERTAKE A RESEARCH AND INCENTIVE PROGRAM TO ENCOURAGE MANUFACTURERS AND PACKAGERS OF RETAIL AND WHOLESALE GOODS TO MINIMIZE IF NOT ELIMINATE THE AMOUNT OF THROW-AWAY OR DISPOSABLE PRODUCTS AND PACKAGING THAT REACHES THE HOUSEHOLD. THIS COULD INCLUDE CONSIDERATION OF NATIONAL LEGISLATION REQUIRING A REFUNDABLE DEPOSIT ON RETURNABLE BEVERAGE CONTAINERS, PROHIBITING NON-RETURNABLES, AND ATTEMPTS TO ELIMINATE THE DISINCENTIVES FOR THE USE OF RETURNABLE GOODS THAT WE HAVE BUILT INTO OUR ECONOMY, FOR EXAMPLE WITH RESPECT TO FREIGHT RATES. WE ALSO NEED TO FOCUS MORE ATTENTION ON WAYS TO STABILIZE THE MARKETS FOR RECYCLABLE MATERIALS. IN ADDITION, THE FEDERAL GOVERNMENT SHOULD CONSIDER SPECIAL DEPOSITS ON HAZARDOUS WASTE PRODUCTS SUCH AS DRY-CELL BATTERIES, PAINTS, CERTAIN HOUSEHOLD CLEANERS, AND INSECTICIDES AND BULKY, HARD TO DISPOSE OF PRODUCTS, SUCH AS TIRES OR MAJOR APPLIANCES SO THAT THEY ARE DISPOSED OF IN AN APPROPRIATE MANNER AND DO NOT ROUTINELY WIND UP IN THE LOCAL LANDFILL.

OUR SECOND PRIORITY IS RESOURCE RECOVERY. AS LANDFILL

SPACE BECOMES LESS AVAILABLE AND LESS ENVIRONMENTALLY SAFE TO USE, WE MUST TAKE AGGRESSIVE EFFORTS TO RECOVER WHAT WE CAN OUT OF THE WASTE STREAM AND TO REDUCE THE REST TO THE SMALLEST RESIDUE POSSIBLE. THE MODERN STATE-OF-THE-ART WASTE-TO-ENERGY PLANT IS A FAR CRY FROM THE OLD FASHIONED, SMOKE-BELCHING INCINERATORS THAT USED TO POLLUTE THE LANDSCAPES OF OUR OLDER CITIES. THESE FACILITIES, EQUIPPED WITH DRY GAS SCRUBBERS AND FABRIC FILTER BAGHOUSES CONTROL VIRTUALLY ALL OF THE ACID GASES AND PARTICULATES WHILE GENERATING ELECTRICITY THAT CAN BE SOLD TO HELP DEFRAY THE COST OF THE INSTALLATION. BEST OF ALL, THESE PLANTS REDUCE MASSIVE VOLUMES OF GARBAGE DOWN TO A FRACTION OF ITS ORIGINAL AMOUNT.

FOR EXAMPLE, IN MY OWN AREA, DADE COUNTY, FLORIDA, WE OPERATE THREE SOLID WASTE DISPOSAL FACILITIES--TWO LANDFILLS AND A RESOURCE RECOVERY PLANT--WHICH SERVE ABOUT 2 MILLION PEOPLE LIVING IN 25 CITIES. THE RESOURCE RECOVERY PLANT WAS ONE OF THE FIRST GENERATION FACILITIES BUILT IN THE 1970's. AFTER EXPERIENCING NUMEROUS TECHNICAL, ENVIRONMENTAL, AND FINANCIAL PROBLEMS DURING ITS FIRST YEARS OF OPERATION, WE HAVE CONTRACTED WITH A NEW OPERATOR (MONTERAY POWER CORPORATION) WHO HAS WORKED WITH US TO RETROFIT AND UPGRADE THE PHYSICAL FACILITY. OVER THE LAST TWO YEARS, THE COUNTY ITSELF HAS SPENT $16 MILLION, AND MONTERAY HAS MADE A COMMITMENT TO SPEND ANOTHER $45 MILLION BY THE END OF 1989 ON NECESSARY CAPITAL IMPROVEMENTS. AS A RESULT OF OUR JOINT EFFORTS, THE PLANT IS PRESENTLY MEETING ALL THE EMISSION STANDARDS CONTAINED IN OUR OPERATING PERMIT.

THE RESOURCE RECOVERY PLANT USES REFUSE DERIVED FUEL (RDF). IT HAS A 3,000 TON PER DAY CAPACITY, BUT IS PRESENTLY ONLY FUNCTIONING AT A 2/3 LEVEL (i.e., 2,000 TONS PER DAY). IT IS SELLING ENOUGH ELECTRICITY TO FLORIDA LIGHT AND POWER COMPANY TO SUPPLY 20-25,000 HOMES, AND IT IS RECOVERING AND SELLING 100% OF THE METALS, PRODUCING REVENUES OF $400-500,000 A YEAR. AT THE END OF THE INCINERATION PROCESS, ONLY ABOUT 25% OF THE ORIGINAL VOLUME REMAINS TO BE DISPOSED OF IN OUR LANDFILLS.

OTHER COUNTIES HAVE BUILT ON THE LESSONS DERIVED FROM THE EARLY PLANTS, AND THEY ARE USING MORE MODERN AND ENVIRONMENTALLY EFFECTIVE TECHNOLOGY TO ACHIEVE EVEN BETTER RESULTS. IN MARION COUNTY, OREGON A 550 TON PER DAY WASTE-TO-ENERGY FACILITY REMOVES 90% OF CHLORIDE GASES, 70% OF SULFUR DIOXIDE, AND 99% OF PARTICULATE EMISSIONS, AS IT GENERATES ELECTRICITY SALES OF ABOUT $4 MILLION A YEAR, RECYCLABLE SALES OF ABOUT $200,000 A YEAR, AND LEAVES AN ASH RESIDUE THAT IS 30% OF THE TOTAL VOLUME BURNED. SIMILARLY, IN PINELLAS COUNTY, FLORIDA, THE WORLD'S LARGEST PLANT OF ITS KIND BURNS 3,150 TONS OF GARBAGE A DAY, PRODUCING ENOUGH ELECTRICITY TO SUPPLY 45,000 HOMES, WHILE GENERATING $12 MILLION YEAR FROM THE SALE OF ELECTRICITY AND METALS, AND REDUCING THE VOLUME OF THE GARBAGE BY 90%.

THESE FACILITIES HAVE GREATLY ENHANCED OUR ABILITY TO DEAL WITH INCREASING LEVELS OF GARBAGE IN AN EFFICIENT AND ENVIRONMENTALLY SENSITIVE MANNER. HOWEVER, A COMBINATION OF UNWISE CONGRESSIONAL INITIATIVES AND DELAYS IN EPA'S REGULATORY

PROCESS THREATEN OUR ABILITY MOVE FORWARD. ALTHOUGH THE CLEAN AIR BILL IS NOT WITHIN THE JURISDICTION TO THIS SUBCOMMITTEE, AS A REPRESENTATIVE OF COUNTY GOVERNMENTS, I WOULD BE REMISS IF I DID NOT MENTION OUR CONCERN ABOUT THE PROVISIONS DEALING WITH MUNICIPAL INCINERATOR EMISSIONS AND MUNICIPAL INCINERATOR ASH THAT WERE APPROVED BY THE FULL ENVIRONMENT AND PUBLIC WORKS COMMITTEE DURING THE MARKUP OF THE CLEAN AIR BILL.

AS INDICATED BY EPA DURING THE MARKUP, THE AMENDMENT ADOPTED TO BY THE FULL COMMITTEE WOULD ESTABLISH EMISSION STANDARDS THAT WILL NOT BE MET BY ANY EXISTING INCINERATOR AND THAT CANNOT BE MET BY MANY OF THEM IN THE FUTURE, BECAUSE RETROFITTING IS EITHER TECHNOLOGICALLY IMPOSSIBLE OR FINANCIALLY INFEASIBLE. 25% OF THE PROJECTS CURRENTLY IN THE PLANNING STAGE (THOSE USING RDF FUELS) WILL ALSO NOT MEET THE STANDARDS. BEYOND THIS, THE REQUIREMENT FOR THE PERIODIC PROMULGATION OF NEW STANDARDS THAT MUST BE MET BY ALL EXISTING FACILITIES WILL TURN MUNICIPAL INCINERATORS INTO PERPETUAL CONSTRUCTION SITES. THE RESULTING DOWN TIME WILL THEN REQUIRE GREATER RELIANCE ON LANDFILLS, PROBABLY THE LEAST ENVIRONMENTALLY PROTECTIVE METHOD OF DISPOSAL. IN ADDITION, THE NEED FOR CONSTANT CHANGES, AND THE LIKELIHOOD THAT THE PLANT WILL BE UNABLE TO MEET SOME FUTURE STANDARDS, ARE CONDITIONS WHICH ARE CALCULATED TO INCREASE ANXIETY IN THE MUNICIPAL BOND MARKET. COUNTIES, AND OTHER LOCAL GOVERNMENTS, NEED MORE INCENTIVES--INCLUDING THE CERTAINTY OF REASONABLE REGULATIONS--TO ENCOURAGE THE PRIVATE SECTOR TO INVEST IN THESE ENORMOUSLY EXPENSIVE PROJECTS, NOT UNTRIED REGULATORY

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MECHANISMS THAT WILL SCARE THEM AWAY.

ANOTHER SECTION OF THE AMENDMENT WILL POTENTIALLY REQUIRE BLOOD AND TISSUE TESTING OF THOSE LIVING ADJACENT TO INCINERATORS. THIS IS AN UNPRECEDENTED PROPOSAL THAT WILL PROBABLY DO MORE TO FRIGHTEN THE PUBLIC AND MAKE IT MORE DIFFICULT THAT IT IS NOW TO SITE ANY SOLID WASTE DISPOSAL FACILITY IN THE FUTURE.

FINALLY, THE PROVISION MANDATING THE ADOPTION OF LOCAL SOLID WASTE MANAGEMENT PLANS THAT ARE LEGALLY ENFORCEABLE IS AN UNWARRANTED INTERFERENCE WITH LOCAL DECISION-MAKING AUTHORITY WHICH WILL UNDOUBTEDLY RESULT IN REPEATED INSTANCES OF HARASSING LITIGATION BY OPPONENTS OF VARIOUS WASTE DISPOSAL PROJECTS. GARBAGE ISN'T POPULAR, ESPECIALLY WHEN ITS IN SOMEONE'S NEIGHBORHOOD, AND AN ALLEGATION THAT A FACILITY DOESN'T MEET ALL THE TESTS OF THE PLAN IS ENOUGH TO BRING EVERYONE INTO COURT FOR A FREE-FOR-ALL.

WE DO NOT [illegible] IMPLY THAT WE BELIEVE THAT MUNICIPAL WASTE DISPOSAL FACILITIES SHOULD OPERATE FREE OF GOVERNMENT REGULATIONS. QUITE THE CONTRARY, WE THINK THAT EPA HAS A CONSTRUCTIVE REGULATORY ROLE THAT IT SHOULD BE PLAYING. FOR EXAMPLE, IT IS IMPERATIVE THAT EPA DEVELOP A REALISTIC, HEALTH-BASED ASSESSMENT OF DIOXIN AND THAN PROMULGATE APPROPRIATE REGULATIONS BASED ON THAT ASSESSMENT. NACo HAS BEEN AMONG THOSE ORGANIZATIONS WHO HAVE BEEN PRESSING EPA TO MOVE AGGRESSIVELY TO

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DEVELOP REGULATIONS FOR ASH RESIDUE DISPOSAL THAT PROTECT PUBLIC HEALTH AND THE ENVIRONMENT UNDER SUBTITLE D OF RCRA. IN ADDITION, WE AGREE THAT EPA SHOULD REQUIRE ENVIRONMENTAL MONITORING TECHNIQUES. HOWEVER, IT IS IMPORTANT THAT SUCH MONITORING MEASURES BE RELEVANT TO THE STRUCTURE AND FUNCTION OF RESOURCE RECOVERY FACILITIES.

IN ADDITION TO A REGULATORY ROLE, WE ALSO BELIEVE THAT THE FEDERAL GOVERNMENT SHOULD BE ASSISTING LOCAL GOVERNMENTS WITH FINANCIAL AND TECHNICAL SUPPORT FOR RESOURCE RECOVERY PROJECTS, PARTICULARLY THOSE SERVING A REGIONAL OR MULTI-JURISDICTIONAL AREA.

THE LAST PRIORITY IS LANDFILLS. FROM THE STANDPOINT OF AN ENVIRONMENTALLY RESPONSIBLE NATIONAL SOLID WASTE MANAGEMENT POLICY, BURYING ONE'S GARBAGE IN A HOLE IN THE GROUND, IS THE LEAST PREFERABLE ALTERNATIVE. NONETHELESS AT THE PRESENT TIME COUNTIES ARE RESPONSIBLE FOR ALMOST 40% OF THE LANDFILLS THAT ARE OWNED AND OPERATED BY LOCAL GOVERNMENTS. WE THEREFORE SUPPORT THE ESTABLISHING OF UNIFORM MINIMAL LANDFILL STANDARDS THAT WILL PROTECT NATURAL RESOURCES, PARTICULARLY OUR UNDERGROUND WATER SUPPLY. WE ALSO PROPOSE THAT THE FEDERAL GOVERNMENT PROVIDE STATES AND LOCAL GOVERNMENTS WITH TECHNICAL ASSISTANCE TO PROMOTE THE SAFE CLOSURE OF LANDFILLS AND TO ENCOURAGE THE ESTABLISHMENT OF POST-CLOSURE FUNDS.

ALTHOUGH COUNTIES HOPE THAT THE FEDERAL GOVERNMENT ACTS AS

OUR CONSTRUCTIVE PARTNER WITH RESPECT TO SOLID WASTE DISPOSAL, WE ARE NOT SITTING BACK AND WAITING FOR WASHINGTON. MANY COUNTIES HAVE DEVELOPED AND IMPLEMENTED IMAGINATIVE AND EFFECTIVE SOLUTIONS OF THEIR OWN. MY OWN COUNTY'S APPROACH TO THE PROBLEM OF THE DISPOSAL OF HAZARDOUS WASTES IN A SAFE AND ENVIRONMENTALLY ACCEPTABLE MANNER IS A GOOD CASE IN POINT.

THE USE OF HAZARDOUS MATERIAL AND SYNTHETIC CHEMICALS HAS BECOME PERVASIVE AND COMMONPLACE IN MODERN SOCIETY. THE IMPACT IS EVERYWHERE AND IN VIRTUALLY EVERYTHING WE TOUCH: FROM THE GROCERY STORE AND GAS STATION TO INDUSTRIAL AND MANUFACTURING SITES; FROM THE CLOTHES WE WEAR AND THE NEWSPAPERS WE READ TO PLASTICS IN A THOUSAND FORMS. THE COUNTLESS LIFE-STYLE BENEFITS FROM THE USE OF THESE MATERIALS HAVE INEVITABLE TRADE-OFFS, AND CONCERN HAD BEGUN TO BUILD IN DADE COUNTY AND ACROSS THE NATION REGARDING THE POTENTIALLY DISASTROUS AFFECT OF IMPROPER STORAGE AND TRANSPORT OF THESE SUBSTANCES. GIVEN THE FRAGILITY OF THE BISCAYNE SOLE SOURCE AQUIFER AND OUR EXTREMELY POROUS LIMESTONE SOIL, IT BECAME IMPERATIVE TO FASHION A STRATEGY FOR THE DISPOSAL OF HAZARDOUS WASTES IN A SAFE AND ENVIRONMENTALLY ACCEPTABLE MANNER.

IN 1983, WE ADOPTED A LEGISLATIVE PACKAGE THAT HAS BEEN TERMED A LOCAL "CRADLE TO THE GRAVE" APPROACH TO HAZARDOUS WASTE MANAGEMENT. IT INCLUDES A HAZARDOUS WASTE CLEANUP TRUST FUND, A LIQUID WASTE TRANSPORTERS PERMIT PROGRAM, AND THE REGULATION OF UNDERGROUND STORAGE FACILITIES FOR HAZARDOUS MATERIALS. THE

ENTIRE PROGRAM IS SELF-FUNDED THROUGH THE FEES CHARGED FOR THE MANDATED PERMITS AND LICENSES. USING THE ANNUAL PERMIT MECHANISM OUR COUNTY DEPARTMENT OF ENVIRONMENTAL RESOURCES MANAGEMENT MONITORS AND REGULATES ALL ACTIVITY DEALING WITH THE TRANSPORTATION AND STORAGE OF HAZARDOUS SUBSTANCES IN THE COUNTY. USING THE FUNDS IN OUR OWN REVOLVING MINI-SUPERFUND, WE HAVE THE CAPACITY TO PERFORM CLEANUPS AND TO PREVENT HAZARDOUS SITUATIONS FROM PERSISTING.

ALL OVER THIS NATION, LOCAL GOVERNMENTS HAVE USED THEIR INGENUITY AND FINANCIAL RESOURCES TO ADDRESS THE GRAVE SOLID WASTE DISPOSAL PROBLEMS WITH WHICH THEY ARE FACED. WE DO NOT EXPECT WASHINGTON TO DO OUR JOB. HOWEVER, WE WOULD HOPE THAT WASHINGTON WOULD MAKE OUR JOB EASIER AND NOT MORE DIFFICULT. WE NEED AND WANT APPROPRIATE, NECESSARY REGULATIONS AND A REALISTIC LEGISLATIVE FRAMEWORK WITHIN WHICH TO OPERATE. THIS SUBCOMMITTEE HAS DEVOTED MUCH OF ITS TIME AND ENERGY TO THE DEVELOPMENT OF EFFECTIVE, FAR-REACHING ENVIRONMENTAL LEGISLATION IN THE PAST. IT HAS ALSO NOT HESITATED TO APPLY A CONSTRUCTIVE PROD TO EPA, WHEN THAT WAS NECESSARY. WE ARE CONFIDENT THAT YOU WILL CONTINUE TO FUNCTION AS PART OF THE SOLUTION, AND WE LOOK FORWARD TO WORKING WITH YOU IN THAT ENDEAVOR.

## 4.4. SOLID AND HAZARDOUS WASTE MANAGEMENT

**Improper solid and hazardous waste disposal is a national problem which contributes to air, water, and land pollution and endangers the public health.**

**4.4.1 National Solid Waste Management Program**—NACo supports a national solid waste management program which incorporates the following elements:

A. The highest priorities are waste reduction and recycling.

1. The federal government should support a research and incentive program with manufacturers and packagers of retail and wholesale goods to minimize if not eliminate the amount of throw-away or disposable products and packaging that reach the household. (source reduction)
2. National legislation prohibiting nonreturnable beverages containers and requiring a refundable deposit for all beverage containers should be encouraged.
3. The federal government should support a research and incentive program for increasing the desire and ability of our society to reuse (recycle) as much of our waste as possible. Refundable deposits on all types of containers should be looked at as well as special deposits on hazard waste products such as batteries or insecticides and on bulky hard to dispose of products such as tires.
4. All levels of government should eliminate disincentives for the use of reusable goods. Freight rates, convenience of recycling,unstable markets are examples of areas to investigate.

B. Second priority is resource recovery implemented by:

1. Federal financial and technical support for county resource recovery and energy conservation including construction grant programs.
2. Financial and technical incentives for multi-jurisdictional resource recovery projects.
3. Restoration of federal tax incentives to encourage greater participation by the private sector in resource recovery projects.
4. Consistency in the federal permitting process to avoid the costly reconstruction or retrofitting of previously approved projects.
5. Encouragement and incentives for innovative uses for ash and other by-products of resource recovery processes.
6. Utilization of environmental monitoring techniques relevant to the structure and function of resource recovery facilities and other by-products.

C. Third priority is landfills

1. Uniform minimal landfill standards should be established to protect natural resources particularly water supplies.
2. Encourage the provision of technical assistance to states and counties relating to the safe closure of landfills to protect the environment.
3. Encourage the establishment of a post-closure fund (i.e. UST trust fund)

**4.4.2 Hazardous Waste Management**—NACo supports a national hazardous waste management program that includes the following elements:

A. Superfund—NACo supports the highest appropriation level for the implementation of the Superfund as established in the Superfund Amendments Reauthorization Acts of 1986 (SARA)

The Federal Role: Standards and Deadlines—EPA, the states, and responsible parties have been hampered in site cleanup decisions by the lack of uniform cleanup standards. NACo strongly affirms the position that EPA should assure local government perspective by ongoing consultation with state and local governments developing specific cleanup strategies for individual superfund sites.

The EPA and other federal agencies involved in hazardous waste site cleanup should increase their financial and technical commitments to the problem and make better and more rapid use of the money already available for cleanup. The National Association of Counties should work with appropriate federal agencies to support improved hazardous waste cleanup.

Funds from the Hazardous Response Trust Fund should be used to support at least half of the costs of long term operation and maintenance at federal cleanup sites, includes those sites owned and operated by local governments.

State and Local Government Responsibility—States and local governments should be given greater decision-making responsibilities under the Superfund program than they currently have. This should include options for planning and implementing some Superfund response actions and total flexibility in financing their own cleanup or in providing matching funds for federal cleanup sites.

Community Right-to-Know—Recent releases of hazardous chemicals in this country and abroad have heightened awareness of the critical need for greater community knowledge and understanding of the nature of the substances manufactured, processed, stored or transshipped within each jurisdiction.

NACo generally endorses the provisions of Title III of SARA with respect to community right-to-know and emergency planning. However, EPA should take into account the fact that the provisions of Title III impact directly and heavily on local governments. Local governments should play a major role in the establishment and operation of the local emergency planning committees. The cost of developing state and local emergency should be borne by the federal government.

NACo supports the provision of technical assistance and training programs at the federal level to those local governments requiring or requesting such assistance.

Additionally, the information that is provided to the local emergency planning committees and to local fire departments should be presented in a form that is intelligible to them and therefore practical and usable.

B. Source Reduction—The federal government should engage in and promote research and development into technologies which through neutralization, destruction, or recovery processes, reduce the need for hazardous waste landfill disposal capacity.

C. Hazardous Landfill Regulations—The federal government should provide state and local governments with financial and technical assistance to evaluate potential new sites for hazardous waste disposal facilities.

Hazardous waste landfill regulations should incorporate state-of-the-art technology-based design and operating standards. The EPA should require liners and leachate collection systems for existing hazardous waste landfills, with exemptions available to those who can demonstrate that they do not pose a threat to public health or the environment or use alternative methods for preventing groundwater contamination.

The federal government should be required to assure that there is no degradation of the public health and the environment as a result of the establishment of new hazardous waste disposal facilities. At minimum, this can be accomplished by the development and implementation of techniques for prompt and responsible emergency and long terms actions to be undertaken in case of spills or leakage at the disposal site or in the transportation of hazardous materials to and from the site.

Major expansions or additions to existing hazardous waste disposal facilities should be required to obtain permits as if they were "new" facilities. Once a permit is issued, facilities should be allowed to expand according to their maximum permitted limitations.

NACo encourages the development of demonstration projects for the elimination of hazardous residential waste.

Congress should assure that hazardous waste sites permitted under the Resource Conservation and Recovery Act are subject to a continuing inspection process. Owners and operators of hazardous waste disposal facilities should be assured of the ability to obtain adequate insurance for any emergency response and against any liability that may occur. The costs of the inspections and insurance should be offset by a federal mechanism that is funded by a tax on hazardous waste generators.

**4.4.3 Nuclear Waste Management**—Present and future stockpiles of nuclear wastes pose a serious threat to the natural environment and to the health and welfare of the people. Counties should be involved in all siting and transportation decisions regarding nuclear wastes. Local land use plans, policies, and regulatory schemes should be considered when siting a repository. Furthermore, any comprehensive nuclear waste management program should include:

I. Site Selection

A. Once a site is identified as a possible repository, the local governments affected by the site development should be immediately notified.

B. Appropriate representatives of the federal agencies involved should meet with local officials and citizen groups and openly discuss the benefits and real hazards of the potential repository.

C. A full environmental impact statement must be done and thoroughly analyzed before site selection.

II. Site Development

A. A state in which a site has been determined should be required to establish a body composed of state and local officials to review all proposed federal actions.

B. Federal, state, and local officials must work together on a management plan which would include the following elements:

(1) provision for ongoing monitoring of the site;

(2) an assessment of the adequacy of local emergency preparedness plans and identification of areas in need of financial and technical assistance; and

(3) an assessment of the financial impact of the repository on the local community and an estimate of needed compensations.

C. A clear statement that any and all costs associated with the site development and management will be borne by the federal government and not local taxpayers.

**4.4.4 Disposal of Nerve Gas**—The EPA should recognize the transportation and disposal or military nerve agents as a hazardous substance.

NSWMA
National Solid Wastes Management Association

Testimony

of

Peter Vardy

Chairman, Institute of Solid Waste
Disposal
NATIONAL SOLID WASTES MANAGEMENT
ASSOCIATION

before

Senate Environment and Public Works
Committee
Subcommittee on Hazardous Waste
and Toxic Substances

December 3, 1987

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My name is Peter Vardy. I am Chairman of the Institute of Solid Waste Disposal (ISWD), a unit of the National Solid Wastes Management Association (NSWMA). ISWD represents nearly 100 private companies that own and operate solid waste landfills within the United States and Canada. I also serve as Vice President of Environmental Management for Waste Management, Inc., a publicly-owned corporation located in Oak Brook, Illinois. I would like to thank this subcommittee and its Chairman for inviting me to testify today.

NSWMA is a trade association representing 2,700 member companies in all sectors of the private waste services industry. These members include refuse collectors, remedial contractors, resource recovery plant operators, commercial hazardous waste managers and transporters, recyclers and environmental engineers. As you may know, private waste haulers collect 60% of the country's household refuse and over 90% of its commercial waste. Our members also own and operate around 17% of the nation's landfills.

Although we are still in the process of formulating our final views on Subtitle D of the Resource Conservation and Recovery Act (RCRA), we have identified three major areas of concern which we would urge Congress to consider during the reauthorization process. These include:

o Strong Federal Standards for Sanitary Landfills

Members of our industry support strengthened federal standards and regulations for all solid waste landfills. We believe that EPA should expand its rulemaking beyond groundwater monitoring, location criteria and corrective action to include other significant issues: closure/post-closure care, liner and leachate collection systems, run-on and run-off controls, gas control, financial responsibility and waste restrictions. To help the Agency address such issues, we have developed a "model rule," a summary of which is appended to this testimony. The complete text of the rule will be submitted under separate cover.

- Equal Applicability of the Law

  Currently, EPA has focused its attention on municipal landfills because these sites -- numbering around 9,300 -- may receive small quantities of hazardous wastes (e.g., from households) and thus may pose a threat to ground-water. As a result, the Agency is developing rules which will apply to only four percent of all solid waste facilities and at most six percent of the total non-hazardous waste stream.

  Ignored in this effort are more than 200,000 surface impoundments, industrial landfills, land application units, and an untold number of waste piles that are maintained by various waste generators. We believe that this oversight should be remedied by applying federal standards to all solid waste facilities --regardless of who owns or operates them.

- Adequate Handling of Special Wastes

  Although Subtitle D does not address the problem of "special wastes," we believe that Congress should direct EPA to include such wastes within its regulatory program. Two examples that have received considerable public attention involve infectious wastes and incinerator ash residue. We feel that Subtitle D provides ample authority to develop appropriate safeguards for public health and the environment.

Each of these issues deserves attention from Congress, EPA and waste disposal companies. In the following sections, we have tried to provide more detailed ideas and suggestions that will lay the groundwork for an expanded regulatory program. At the end of the testimony we've identified issues which must be resolved in RCRA reauthorization.

## Strong Federal Standards for Sanitary Landfills

As everyone recognizes, solid waste landfills that have been improperly sited, designed and operated can pose a significant threat to human health and the environment. Unfortunately, existing federal criteria are inadequate and do not protect health or the environment. To rectify this problem, ISWD has developed a "model rule" with suggested standards for general operations, site location, groundwater protection, corrective action and permitting. Our views on each of these issues are summarized below.

### A. General Operational Standards

All operational procedures should begin by requiring landfill facilities to comply with our industry's best engineering practices. Such practices prohibit the disposal of bulk and containerized liquids and specify methods for spreading and compacting wastes, applying daily covers and controlling methane gas.

Other important subjects must also be addressed. In our view, for example, facility operators must develop detailed plans which assure that all sites will be closed and monitored in a manner that minimizes their future environmental impact. Financial responsibility for carrying out such plans should be determined in advance, so that if operators fail to complete them, this role may be taken over by regulatory authorities.

Finally, we believe two components of the refuse stream deserve particular attention. Special wastes must be identified and their disposal must be carried out according to the best handling practices. Such wastes -- which often originate from industrial sources rather than households -- include infectious wastes and waste-to-energy plant ash. Similarly, hazardous wastes must be excluded from solid waste disposal sites through load checking programs. Whenever such wastes are identified, appropriate disposal methods must be employed.

## B. Locational Standards

To ensure environmental safety, solid waste disposal facilities must be properly located. In our model rule, we have developed standards which will assist in making the correct choice. These standards are defined as primary criteria and categorical design criteria.

Primary criteria direct facility operators to comply with other federal rules, such as the Clean Water Act, Safe Drinking Water Act, etc. They also ensure that landfills will not interfere with endangered or threatened species, wild and scenic rivers, and cultural resources. Finally, they require the operator to demonstrate that facilities will not adversely affect the environment if located in or near floodplains, airports, wetlands, and seismic or unstable areas.

Categorical design criteria establish four categories of facility design based on broad hydrogeologic factors. These categories set the requirements for liners, leachate collection systems and final covers. Our industry feels that a categorical design approach has many advantages over the pure performance standards.

Of greatest importance, this approach will ensure that all landfills -- regardless of ownership -- meet the highest standards and provide the greatest measure of environmental protection. We also feel that this approach will be cost effective because the expense of developing a proper design is far less than whatever would be required to undertake corrective action.

C. Ground-Water Protection and Corrective Action

At present, the Agency seems eager to set standards for solid waste landfills that are simply transposed from hazardous waste disposal procedures. Considering that these facilities produce widely different kinds of leachate (i.e., solid waste leachate is more dilute and contains fewer constituents than hazardous waste), we believe that regulations should be tailored to fit the specific conditions that actually arise.

Our industry favors a risk-based strategy for managing groundwater protection that includes a "stair-step" progression of monitoring and corrective activities. These steps are:

o Detection Monitoring. Initially, an effective groundwater monitoring program requires quarterly sampling of general water quality parameters and other factors which indicate potential contamination. If statistically significant increases occur, facility operators must take the second step: assessment monitoring.

o Assessment Monitoring. This phase is designed to confirm any changes in groundwater quality that are found during previous activities. Assessment monitoring involves four separate components. First, quarterly sampling of wells, which showed statistically significant changes, for a wider range of constituents. Second, continued detection monitoring is carried out at other wells. Third, the source of contamination is determined, and last, the extent of this problem is ascertained.

o Risk Identification Program. If the cause of contamination can be traced to on-site operations, a risk identification program is then developed. Under this program, risk assessment methods are used to determine whether an offending facility poses a reasonable probability of causing adverse effects on human health and the environment. If such risks exist, facility operators are required to carry out corrective action.

o Corrective Action. Where additional protection of public health and the environment is needed, corrective action must be undertaken. The objective of this action is to eliminate contamination and restore water quality.

## D. Permitting Standards

Industry has identified the procedures, documentation and other requirements which we feel must be met in order for an operator to be permitted to operate a municipal solid waste landfill. The form and scope of these requirements are essential if landfill siting is to occur and disposal crises are not to continue.

Equal Applicability of the Law

Subtitle D currently focuses on solid waste disposal sites which may receive household hazardous wastes or small quantity generators waste. Because of existing statutory language, EPA has proposed to focus on municipal solid waste landfills as these are assumed to pose a significant threat to groundwater.

What such calculations ignore, however, is that a large number of solid waste facilities which do not receive household hazardous wastes may indeed pose a significant risk to human health and the environment. Consider, for example, that there are 24,000 waste ponds in the U.S. which receive up to 1.3 billion metric tons of mining wastes each year. And despite the fact that such wastes often contain high concentrations of heavy metals, sulfate, sodium, potassium and cyanide, less than 1% (12 million tons) are currently classified as hazardous under RCRA. In other words, the rest have been "orphaned" under the existing provisions of Subtitle D.

Equally dramatic, EPA has taken no steps to lay the groundwork for adequate regulation of waste from oil and gas production, municipal sludges or from agricultural, industrial, construction and demolition activities. Apparently, EPA has not even created the obvious data-gathering mechanisms that would allow such steps to be taken. I am attaching for the record a brief analysis of potential problems from so-called "orphan wastes." We strongly urge Congress to address these issues and particularly to assure that large segments of the public and the environment are not left at risk.

## Adequate Handling of Special Wastes

Unfortunately, RCRA classifies the diverse range of waste types in this country using only black and white categories. Although Congress recognized the need to develop special management strategies for certain types of waste (e.g., ash from coal-fired boilers, coal mining wastes, municipal sludges, and oil and gas drilling wastes), such options have generally taken the form of exemptions from existing rules or temporary waivers.

In our view, the time has come for Congress to address the issue of special wastes and if necessary to place them within a separate category. This issue arises because not all wastes pose sufficient health and environmental risks to justify regulation under Subtitle C. Two examples currently receiving public attention include infectious wastes and ash residue from resource recovery plants. We find little reason to address such wastes within the Subtitle C regulatory program. Significantly, a majority of states have also recognized the need to develop special regulatory programs for these wastes which are substantially different from Subtitle C but provide more safeguards than Subtitle D.

I'd like to illustrate this point in greater detail. Let's take a look at infectious wastes. Clearly, such refuse does require management controls that are not usually needed for other non-hazardous wastes. But this need does not justify invoking the complex and stringent requirements of Subtitle C. Instead, EPA should be directed to provide a regulatory framework with clear definitions of which wastes are involved, what mechanisms should be used to track them and how they should be treated to eliminate the danger of additional infection. Once these steps have been taken, such refuse may then be safely deposited in a well-designed Subtitle D landfill.

Another important case involves ash residues from waste-to-energy facilities. Currently, such residues are characterized as a large volume/low hazard special waste. The suggestion to regulate them under Subtitle C is a misapplication of a very scarce national resource -- hazardous waste disposal facilities. This is particularly true because other environmentally sound alternatives are available. We believe Congress must end the debate and resolve the issue of ash residue disposal. An overall management program should be based on four principles:

- Developing resource recovery capacity. The primary goal of new legislation should be to expedite the orderly development of resource recovery capacity and to ensure responsible ash disposal. Many communities around the country are already facing a shortage of solid waste landfill space and need the reduction in volume afforded by waste-to-energy plants. Regulatory controls should not impose an unreasonable burden on this valuable technology.

- Controlling ash disposal under Subtitle D. Instead of exhausting the country's limited hazardous waste disposal capacity, incinerator ash can be handled effectively in well-designed landfills that meet the stringent location and design guidelines for Subtitle D facilities. Scientific evidence from soil chemistry and hydrology confirms that such facilities provide adequate protection against leaching and other potential difficulties.
- Collecting better data. Identification of long term treatment and disposal practices for ash residue must be based on better data than are available today. With modest time and resources, EPA can build on this data base and confirm or enhance basic landfill designs. Our industry is prepared to assist in such an effort.
- Allowing sufficient flexibility. Any new legislation or regulatory program should contain sufficient flexibility so that facility managers can identify both economically efficient as well as environmentally sound disposal options. To give one example: long distance transportation of ash for disposal may not be environmentally or economically sound for particular communities. Reasonable alternatives may include monofilling, special treatment (if necessary) and codisposal, and beneficial reuse. If these alternatives afford reasonable protection, they should be included as part of a good regulatory program.

Unless Congress clearly expresses its support for these principles, we are concerned that regulatory officials will face great uncertainty in addressing major public issues. And the most likely outcome of uncertainty will be continued inaction.

## Additional Issues for RCRA Reauthorization

RCRA reauthorization also provides Congress with an opportunity to give much needed direction on other aspects of our country's solid waste disposal system. We would urge you to address several important issues:

### A. State Programs and Certification

Subtitle D makes extensive provision for solid waste planning (for example, in Sections 4006(c) and 4003(a)(2)). By November, 1986, when EPA submitted its report to Congress on Phase I of its national evaluation, 25 state plans had been approved in full and 6 others had received partial approval. Unfortunately, the Agency has also acknowledged that it ceased to review such plans after 1981.

Congressional intent was not clear concerning states which fail to submit plans and/or whose plans are rejected. Although Congress may have intended for EPA to assume primary responsibility for creating such plans, the Agency does not interpret its authority in this way. Nor is EPA willing to bring suit against states which fail to submit plans, or even to punish them by withholding funds from related programs. Meanwhile, the current shortage of disposal capacity in many parts of the country --and pressure to restrict the movement of wastes within and among states -- must in large part be attributed to a lack of comprehensive planning.

Similar questions arise over the issue of state permitting and certification. Under Section 4005(c), Congress directed the states to put in place -- by November, 1987 -- a permit program or other system to assure that sanitary landfills comply with applicable federal criteria published in 1979. In addition, state officials are required to develop solid waste management programs in accordance with revised federal standards to be published by March, 1988. Finally, the law directs EPA to determine the adequacy of such programs.

At present, we anticipate that EPA will probably not provide even minimum design and operating requirements for use by state officials. How will EPA then evaluate state programs and what will a "determination" about them mean? If particular programs are judged to be inadequate, what basis will the Agency use for enforcement actions under Sections 3007 and 3008?

As we indicated in previous testimony, we are particularly concerned about these questions, because they raise the specter of discrimination and bias. Such discrimination might take three forms: requiring publicly-owned facilities to meet less stringent requirements than private facilities; requiring on-site facilities to meet less stringent requirements than off-site facilities; and requiring small communities to meet less stringent requirements than large communities. We do not believe that Congress intended to make environmental protection optional under RCRA. Nor do we believe that Congress intended for EPA to travel a tortuous, ambiguous course to exercise federal enforcement authority at facilities where states and owner/ operators were abusing their discretion.

To rectify this problem, we believe that Congress should reaffirm its commitment to assuring that a minimally protective solid waste program is being implemented in every state and at every facility. If necessary, new prescriptions should be added to the law. A starting point might involve ensuring that the criteria proposed under Section 4010 are consistent in practice with oversight goals included in Section 4005(c).

B. Recycling

Recycling constitutes an essential element of the country's solid waste management system. Recycling can reduce the amount of solid waste that must be disposed by other means, conserve landfill space and reduce the size of waste-to-energy facilities. In some cases, recycling can be more economical than alternative disposal methods. Private waste service industries are major players in today's recycling initiatives.

One major impediment to recycling involves the recyclability of packaging materials. Fibers can be used and reused several times before they finally reach the end of their useful life. But if such materials are coated with plastic -- or if they are imprinted with inks that come laden with heavy metals -- they are not recyclable. Plastic containers such as polyethylene milk bottles or PET soft drink bottles can be recycled but only when they are not mixed with other types of plastics. We would urge EPA and other federal agencies to sponsor a broad reexamination of how packaging systems can be "built for reuse" as well as for other purposes.

The ultimate limit on all recycling activities is found in the marketplace. Materials are not truly recycled until they have been returned to commerce; merely separating them from other trash and carrying them to a landfill is not sufficient. Federal, state and local governments should revise their procurement policies to favor recycled paper products wherever possible. This strategy is often proposed but seldom implemented. Even if government purchases are largely symbolic, they would provide impetus for suppliers to use more recyclable materials.

C. Materials Substitution

As we have previously testified here, environmental considerations should not be left solely to the final step of controlling disposal. While state-of-the-art treatment and disposal technologies can reduce the volume of unwanted refuse, they cannot eliminate such refuse from the waste stream. Consider this example. Before newsprint can be fully recycled, it must be de-inked. As a result, heavy metals such as cadmium -- which are found in most commercial inks -- are shifted to another point in the waste management cycle, such as effluent discharge into a publicly-owned treatment works.

If there are substances that cannot be tolerated in the environment in any quantity or concentration, then the only realistic management strategy is to prohibit such substances from coming into the possession of consumers. In the United States, this has been done with chemicals such as PCBs, DDT, and EDB. In Sweden, concerns over ambient levels of cadmium have prompted regulators to prohibit the disposal of cadmium-bearing material as a solid waste.

What these strategies have in common is a recognition that source separation alone will not keep certain pollutants like lead and cadmium out of the solid waste stream. The only alternative may be to restrict their use in short-lived consumable products. While we do not know the full social, environmental, and economic impact of eliminating certain materials from manufacturing, we should be prepared to pursue that option. We believe that Congress should direct EPA to seriously explore this possibility and to work with industry in reducing its dependence on potentially harmful substances.

## D. State and Local Restrictions on the Movement of Solid Waste in Commerce

In 1978, the U.S. Supreme Court ruled that a state may not confine the natural resource of its remaining landfill capacity for the exclusive use of its own citizens by placing entirely on out-of-state interests the full burden of conserving the banning state's remaining landfill capacity. Almost ten years later, we are witnessing a disturbing proliferation of state and local ordinances and regulations trying to end-run Philadelphia v. New Jersey through various types of controls purportedly to advance environmental protection and rational planning. The fact is, however, that these restrictions are protectionistic expediencies to diffuse political and public pressures against permitting new disposal capacity or expanding existing capacity. The ultimate waste ban is to have no disposal facility at all.

Restrictions on the movement of solid wastes in commerce and sensible waste management planning are inconsistent goals. Importation bans upset existing institutional arrangements, pay little attention to the practical effects on the private waste industry, disposal capacity in the state or community erecting the barrier, the consumer, or the environment. Let me explain by way of example and illustration.

While the increase in state and local activities to impede the free flow of solid wastes primarily has been in response to the serious capacity shortfalls in the Northeast Corridor, there are sound environmental and economic reasons why waste moves across state and county boundaries with little fanfare.

Within an environmental context, some existing landfills may not be able to upgrade to meet new environmental requirements unless they can be assured of the revenue from sufficient volumes of waste, some of which may originate beyond the geographic jurisdictions in which the facilities are located. In other situations it would be reasonable and prudent to send waste to a more distant landfill because the one closer to the point of waste generation may not be as environmentally sound or as well managed. Third, waste importation bans may delay or prevent closing of bad facilities. Specifically, if a community does not have the resources to develop a new disposal facility and loses the escape hatch of sending its waste to a facility that is better engineered and operated across a state or county line, enormous pressure develops to keep the poorly run facility operational.

There also are some basic economic considerations that are outcome determinative as to where waste flows. The chronic tightness of many municipal budgets demands that refuse be disposed at a facility offering the lowest rate, environmental considerations being equal, even if other facilities are more closely available. Second, facilities may be forced to raise disposal costs to the detriment of local consumers if the facility is denied the revenues from waste generated outside the jurisdiction in which the facility is located. This reflects the real marketplace fact that the profitability of a given landfill is dependent upon accepting a certain volume of waste, and if that volume cannot be guaranteed locally, then the only option is to shift the economic burden to the restrictive community served by the facility.

While this may come as a surprise to some, Congress clearly understood in large part these environmental and economic realities affecting the movement of municipal waste. Indeed, existing Subtitle D reflects a desirability for promoting approaches to solid waste management that transcend local jurisdictional boundaries. Section 4003(a)(2), addressing the requirements for approval of state plans, specifically directs states to accommodate the disposal of all solid waste in an environmentally sound manner "including solid waste ... originating in other states ...." Section 4006(c) provides for implementation of interstate regional solid waste management plans.

EPA, too, fully understands these mandates and in promulgating the federal guidelines for developing and implementing state solid waste management plans the Agency has squarely addressed the issue of free movement of wastes. First, in assessing the need for facilities, the assessment should include "current and projected movement of solid and hazardous waste across state and local boundaries ...." Second, in connection with facility development, the regulations direct that the state plan "should provide for substate cooperation and policies for free and unrestricted movement of solid and hazardous wastes across state and local boundaries".

We urge the Subcommittee to examine ways by which to assure that the states under EPA's guidance and oversight do not continue this disruptive trend of restricting the free movement of solid wastes in interstate commerce. Interestingly, on the hazardous waste side EPA's Assistant Administrator, Winston Porter, on September 14, 1987, sent a letter to all state environmental commissioners expressing serious concern over the developing trend of states attempting to limit new capacity in preventing the siting of new hazardous waste facilities. Restrictions on the volumes of waste coming into a state from other states was specifically included in examples of this trend. This type of restriction is even more pervasive in solid waste planning at the state and local levels.

## Conclusion

We sincerely hope that you will find this list of issues helpful to you as you structure further hearings on RCRA reauthorization. We are vitally interested in the outcome of these deliberations, and look forward to working with you to formulate the solutions that will provide for environmentally sound and cost effective management of the nation's solid waste.

ATTACHMENT 1.

# MODEL REGULATION
# for
# SOLID WASTE DISPOSAL

## Executive Summary

These standards and criteria were developed by industry for use under Subtitle D of the Resource Conservation and Recovery Act (RCRA), as amended, and may be adopted and used by the states for the design, location and operation of new and existing municipal solid waste landfills. These criteria ensure the protection of human health and the environment. This regulation covers the following areas:

- General Operational Standards
- Locational Standards
- Ground-Water Protection and Corrective Action
- Permitting Standards

## General Operational Standards

The operational standards which industry feels are necessary to ensure environmental protection at landfills include procedures for managing special wastes (i.e., non-hazardous wastes which require special handling practices), procedures for excluding hazardous wastes, procedures for closure and post-closure care including financial responsibility for both, and methods of operation. The first two requirements are essential in landfill operation to ensure that wastes accepted are not going to cause problems in later years. The procedures for disposing of special wastes require that wastes be identified and shown not to be hazardous, and that their disposal conforms with any special waste handling practices appropriate to protect human health and the environment. The procedures for excluding hazardous wastes at a disposal site call for load checking programs and methods to handle any hazardous wastes identified.

The Model Regulation requires that facilities develop and implement closure and post-closure care plans at all sites so that facilities are closed in a manner which minimizes future environmental impacts and monitored to ensure that impacts are not occurring in the future. Financial responsibility for these activities is also required at all sites, both public and private, so that if an operator fails to perform closure or post-closure care properly the regulatory authority can perform these functions.

Additionally, the regulation contains requirements for operational procedures which represent best engineering practice. These requirements include a prohibition on the disposal of liquids, methods for spreading and compacting wastes, applying daily cover, and requirements for controlling methane gas. All of the preceding requirements are essential in industry's opinion to operating an environmentally sound disposal facility.

## Locational Standards

The Model Regulation supports the use of location standards for ensuring that municipal solid waste landfills do not pose a threat to public health and the environment because of locational constraints. These standards are divided in two categories: primary criteria and categorical design criteria. The primary criteria include provisions for a facility operator to comply with other existing federal rules, such as the Clean Water Act (CWA), Safe Drinking Water Act (SDWA), etc.; to ensure the protection of endangered or threatened species, wild and scenic rivers, and cultural resources; and to demonstrate that the facility will not adversely impact the environment if located in or near floodplains, airports, wetlands, and seismic or unstable areas.

The categorical design criteria establishes four categories of facility design which are protective of the environment based on broad hydrogeologic factors. These categories set the requirements for liners, leachate collection systems, and final cover designs. Industry feels that a categorical design approach such as this has many advantages to the pure performance standards that presently exist in the Subtitle D criteria because they will ensure that all landfills, regardless of ownership, are designed to be protective of human health and the environment and states will be limited in their ability to selectively impose requirements. States may oppose this type of approach, claiming that they have the ability to properly define landfill designs and that it would be too costly. However, based on the states' past performance it is unlikely that they will be able to adequately establish design standards which are protective without being overly stringent for the site condition. Also, industry feels that the costs associated with this approach are reasonable because the extra costs associated with proper design are much less than the costs associated with corrective action.

## Ground-Water Protection and Corrective Action

Industry favors a risk-based approach to ground-water management that is based on a stair step progression of ground-water monitoring consisting of 1) detection monitoring, 2) assessment monitoring, 3) risk identification, and 4) corrective action. These four progressive steps are summarized as follows:

- Detection Monitoring:

  The first phase of the ground-water monitoring program requires quarterly monitoring for the water quality constituents consisting of general water quality parameters and other specific parameters which provide a reliable indication of ground-water contamination from sanitary landfills. Data acquired through this sampling and analysis program would be evaluated for statistically significant increases or changes from background values. If the increases are verified, the facility would be required to develop an assessment monitoring program or demonstrate that the facility was not the source of the increase.

- Assessment Monitoring

  The second phase of the program is designed to confirm the changes in ground-water quality found during detection monitoring. Assessment monitoring would consist of 1) quarterly monitoring of wells which showed statistically significant increases or changes to determine impacts on ground-water for a wider range of constituents, 2) continued detection monitoring at other wells, 3) determination of the source of contamination detected, and 4) determination of the extent of contamination. If the facility verifies that it is the cause of contamination, a risk identification program would be developed.

- Risk Identification Program:

  The third phase of the program would require a facility to demonstrate through application of risk assessment methodologies whether or not the facility poses a reasonable probability of adverse effects on human health and the environment. If such risk assessment confirms an adverse effect on human health and the environment, the facility would be required to perform corrective action. If the risk was not confirmed, ground-water monitoring would be continued to verify that adverse changes were not occurring.

- Corrective Action:

In the final stage of the program, the facility would be required to perform corrective action at the site to ensure protection of public health and the environment. Corrective action could include both active or passive systems and would include a ground-water monitoring program to verify that the corrective actions were effective.

The triggering mechanism between detection and assessment monitoring, and assessment monitoring and risk identification is a valid statistically significant increase or change in monitored ground-water parameters. The types of statistical tests that would be allowed for making this determination would not be limited to a single test (e.g., student's t-test), but would be open to any statistical test which would validly analyze the data. The test selected would be based on the analysis of data collected (i.e., data distribution, number of samples), the type of analysis performed (i.e., trend analysis) and the monitoring plan implemented. The burden of demonstrating that the statistical procedure (or procedures) was valid for the data collected would be the responsibility of the owner/operator. Industry feels that this approach is environmentally protective and is tailored to the needs of municipal solid waste.

## Permitting Standards

The Model Regulation identifies the procedures, documentation, and other requirements which must be met in order for a person to be permitted to operate a municipal solid waste landfill. The rule includes procedures for permit application and state processing, permit terms, and conditions for transferring, modifying, revoking, reissuing, and terminating permits.

ATTACHMENT 2.

## THE ORPHAN WASTES:

### RESOURCE CONSERVATION AND RECOVERY ACT (RCRA)

### WASTES THAT ARE NOT DISPOSED OF IN REGULATED MUNICIPAL LANDFILLS

More than 11 billion tons of solid waste not classified as hazardous are produced each year in the United States. [1] About 96 percent of these wastes are discharged into the approximately 191,000 industrial waste ponds that dot the country. Other waste is put into approximately 6,000 industrial landfills or onto approximately 19,000 "land application units" (LAUs). Municipal solid waste makes up only about 136 million tons, or just over 1 percent of the total, with most being disposed in approximately 9,300 sanitary landfills.

By March 1988, RCRA amendments require the U.S. Environmental Protection Agency (EPA) to promulgate revised minimum performance standards for Subtitle D facilities that may receive household hazardous waste or hazardous waste from "small quantity generators", who produce less than 1,000 kilograms of hazardous waste per month. That means that the Agency's regulations will address only about one percent of all solid wastes and only about four percent of all solid waste disposal facilities i.e., municipal waste placed in sanitary landfills. All other solid wastes exempt from Subtitle C regulation but not addressed by the new Subtitle D criteria are consequently "orphaned". As it is presently being developed, the agency's program does not even contain the obvious data gathering mechanism that could lay the groundwork for adequate regulatory controls in the near future.

The six largest orphan wastes are described below, in descending order, by volume.

## The Orphan Wastes

### Oil and Gas

EPA reports current discharge of brines and drilling muds into 125,074 oil and gas waste ponds in the United

States. The volume is estimated at 8.6 billion metric tons per year (6.25 billion gallons per day). Only 165 of the ponds, about 0.1 percent, monitor groundwater for contamination. Less than one-third have any kind of synthetic or natural liner. The wastes are characterized by high concentrations of chlorides, barium, sodium, and calcium. EPA is conducting a study of these wastes, but they are currently exempt from regulation as a hazardous waste under RCRA, irrespective of the actual contents of the discharge. Oil and gas waste disposal is also emerging as a major issue in the debate over proposed activities within the Alaska National Wildlife Refuge.

## Mining

EPA reports current discharge of mining wastes into 24,376 waste ponds in the United States. The volume is estimated at 1.3 billion metric tons per year. The waste is produced by activities such as crushing, screening, washing, and floatation. Less than six percent of these ponds have any kind of synthetic or natural liner and less than one-third monitor for groundwater contamination. The wastes may contain high concentrations of heavy metals, sulfate, sodium, potassium, and cyanide. EPA reported to Congress on these wastes in 1985 and is investigating them now. Less than 1 percent (12 million tons) are currently classified as hazardous under RCRA.

## Agriculture

EPA reports current discharge of agricultural wastes into 19,167 waste ponds in the United States. The volume is estimated at 1.3 billion metric tons per year (1 billion gallons per day). The discharges include animal wastes from feedlots and farms, crop production wastes, irrigation wastes, and collected field runoff, but do not include those wastes that are returned to the soil as fertilisers or soil conditioners. Less than one percent of the ponds have any groundwater monitoring system or synthetic liner. About 54 percent of the ponds report natural liners. The wastes commonly contain high concentrations of nitrates, pesticides, herbicides, and fertilizers. These agricultural wastes are exempted by RCRA from regulation as hazardous irrespective of the contents of the discharge.

## Industrial

EPA reports a 430 million metric ton current annual discharge into Subtitle D facilities of various industrial wastes that are not currently classified as hazardous. The wastes come from at least 22 different industries, led by industrial organic chemical manufacturers, and for over half of the industries these wastes are expected to contain relatively high levels of heavy metals and organic constituents, including some which are extremely toxic.

Statistics on disposal of these wastes in identified Subtitle D facilities indicate that approximately 65 percent of the wastes are put into waste ponds, 21 percent into waste piles, 13 percent into landfills, and 1 percent in LAUs. Less than one-quarter of the ponds have any kind of synthetic or natural liner and less than 10 percent have groundwater monitoring systems.

## Construction and Demolition

EPA estimates annual generation of 31.5 million metric tons of construction and demolition wastes in the United States. The wastes vary widely and they include mixed lumber, roofing and sheeting scraps, broken concrete, asphalt, brick, stone, plaster, wallboard, glass piping and other building materials. The wastes are placed into landfills or waste piles which are often less stringently regulated than municipal solid waste landfills.

## Municipal Sludge

EPA reports annual generation of 7.6 million metric tons of dry sewage sludge from publicly owned treatment works (POTWs). The sludge constituents vary and often contain cadmium, copper and zinc. Reportedly 46.4 percent of the sludge is managed by "lagooning and landfilling." LAUs receive 25.4 percent, 20.3 percent is incinerated, and 6.6 percent is dumped at sea.

NSWMA strongly supports a stringent regulatory system for municipal waste landfills and repeatedly has urged the Agency to provide thorough, detailed Subtitle D criteria to guide state permitting programs and thereby enhance the public's confidence in siting municipal waste disposal facilities. We believe EPA's evolving regulation fails to meet this objective in several respects and, at the same time, goes well beyond what is needed in other facets of the emerging rule, especially in its groundwater monitoring and corrective action components. But the contrast between EPA's detailed approach to municipal solid waste and the total default with respect to orphan wastes is astonishing. We believe this Subcommittee should examine Congress' intent with respect to the other 99 percent of Subtitle D facilities and issue strong guidance for a new, more rational set of environmental priorities.

Section 4010(c) of the Hazardous and Solid Waste Amendments (HSWA) seems to focus attention on those solid waste disposal facilities "that may receive hazardous household wastes or hazardous wastes from small quantity generators." But Subtitle D of RCRA viewed as a whole seems to indicate that Congress expected EPA to address all solid waste facilities and not limit its attention to municipal waste landfills. For example, Congressman Eckart, sponsor of the original House Amendment creating Section 4010, emphasized the compelling need to address surface impoundments -- whether or not they receive small quantity generator (SQG) or household hazardous wastes. He stressed, for example, that "[m]any of the impoundments are located in areas where there is a potential drinking water source within one mile and two-thirds of these sites do not have liners". 1239 Cong. Reg. H9161 (daily ed. November 3, 1983). Congressman Eckart went on to describe deficiencies in the hazardous waste listing program and lamented that, heretofore, unlisted materials placed in surface impoundments have fallen into "a no man's land of regulation -- Subtitle D..." Id. He concluded that "this amendment [Section 4010] takes the first step to protecting our groundwaters from these numerous impoundments which may endanger them..." Id.

Similarly, the Senate Report points out that "in revising the criteria the Agency should focus initially on municipal landfills and Subtitle D surface impoundments where" small quantity generator and household hazardous materials are most likely to have been disposed with non-hazardous materials (emphasis added). S. Rep. No. 98-284, 98th Congress, 1st Session 52. Apparently the Senate did not envision that this would constitute the entire universe of EPA's program.

Industry feels that the confusion over the preeminence of household hazardous and small quantity generator waste considerations should be addressed as soon as possible. NSWMA would urge the Subcommittee to explore means by which a broader mandate of Subtitle D could be established and inserted into the Agency's sense of priorities. Small quantity generator wastes comprise a very small percentage of the solid waste stream--probably only about one ton per year, on average, for each of the 9,300 sanitary landfills in the country. Similarly, a recent survey indicated that household hazardous wastes account for only 0.08 percent of municipal trash by weight. [3] While these sources demand that municipal landfill owners locate, design and operate facilities with great care, their magnitude pales in comparison with the huge quantities of contaminants in orphan wastes -- often liquids -- that are disposed of all over the country with no federal regulation or oversight. We believe Congress should bring its mandate to EPA more in line with these realities.

Footnotes

[1] U.S. Environmental Protection Agency. Subtitle D Study: Phase I Report. October 1986 ("Subtitle D Report"). Unless otherwise noted, statistics presented in this document are from the Subtitle D Report. The wastes referred to are regulated under Subtitle D of the Resource Conservation and Recovery Act, as amended; they do not include sewage and other discharges subject to Clean Water Act regulation.

[2] SCS Engineers, A Survey of Household Hazardous Wastes and Related Collection Programs, Report to EPA, October 28, 1986.

NRRA

# National Resource Recovery Association

Statement of Marian R. Chertow, President
Connecticut Resources Recovery Authority

December 3, 1987

Before the
Subcommittee on Hazardous Waste and Toxic Substances
of the Committee on Environment and Public Works
U.S. Senate

UNITED STATES CONFERENCE OF MAYORS
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Mr. Chairman and Members of the Subcommittee, I am Marian Chertow, President of the Connecticut Resouces Recovery Authority (CRRA). The Authority is working with approximately one hundred Connecticut towns on solutions to their solid waste management problems. The Authority currently has three resource recovery facilities under construction and four other projects in various phases of planning. The CRRA has issued over $800 million worth of bonds for these projects. The Authority runs four landfills and is also working with Connecticut towns to develop regional recycling centers for an integrated approach to waste stream management. Today I also speak as an Executive Committee Member of the National Resource Recovery Association, an affiliate of the U.S. Conference of Mayors. The Association was formed five years ago to assist local governments and public authorities in their pursuit of alternative disposal options, including waste reduction, recycling, and waste-to-energy programs. The U.S. Conference of Mayors represents over 800 cities nationally.

Local governments across the country are rapidly developing new strategies for environmentally safe disposal of solid waste. While five years ago the norm was to emphasize landfilling of raw garbage, today's norm is quite different. Local governments and the states are devising comprehensive strategies that include waste reduction, recycling, waste-to-energy (municipal combustion) and, finally, well designed and managed landfills. We believe there are two primary reasons for the change in practices. First, Congress deserves credit. The Subtitle D requirements of the Resource Conservation and Recovery Act (RCRA) with their emphasis on state and local planning and prohibition of open dumps have encouraged states and towns to think comprehensively about solid waste management and to invest heavily in alternative disposal and reuse options. Second, as landfills reach capacity and more is learned about groundwater contamination, our citizens, too, have become desirous of environmentally protective practices.

The changes are quite dramatic. In the last ten years, Connecticut has closed 44 of its landfills and opened only two. One hundred and twenty of the state's one hundred and sixty-nine towns are participating in waste-to-energy projects. The Connecticut General Assembly, in its last session, adopted mandatory recycling legislation which will require recycling of a minimum of 25 percent of the State's solid waste stream by 1991. Statewide task forces on which CRRA serves are looking at future legislation covering bulky waste disposal, packaging and additional initiatives in solid waste reduction and recycling.

Having fostered the revolution in state and local waste management plans and practices there is a need for Congress to undertake new federal initiatives to sustain the progress. I am presenting our suggestions today.

## LANDFILL SITING

Mr. Chairman, the largest solid waste problem facing Connecticut and the Northeast is limited landfill capacity for the disposal of solid waste that cannot be recycled and for resource recovery ash. At current rates the Connecticut Department of Environmental Protection has estimated that if all landfills were accessible to all towns, existing landfill capacity in Connecticut would be exhausted by 1989. Federal law aimed at halting environmental abuses connected with improperly sited and managed landfills has been successful, and thus is partially responsible for this landfill capacity problem. Federal laws including the Clean Water Act have increased the complexity and cost of siting new landfills and have unwittingly provided additional ammunition to potential neighbors of landfills who do not want landfills located near them under any circumstances.

All resource recovery and recycling efforts will cease in Connecticut and leave the state's solid waste planning and management in a shambles without the ability to obtain new landfill capacity. Connecticut, like other states, has been reluctant to adopt policies which may at a future time be negated by federal action. I want to clarify that I am not differentiating here between landfills for raw garbage or ash. If anything, the public is aware that ashfills generate less traffic and do not smell, and would be more acceptable. A major focus of new federal initiatives must therefore be to provide positive criteria and guidance to the states and cities for the design of necessary landfills.

## ASH RESIDUE DISPOSAL

A great deal of uncertainty and misunderstanding has arisen, Mr. Chairman, regarding the disposal of ash residue from waste-to-energy facilities. A major obstacle related to so many solid waste issues is that a little misinformation goes a long way. It is our position that EPA should move as quickly as possible in the formulation of technical guidance and the development of a regulatory framework for ash residue disposal within the context of Subtitle D of RCRA. We believe that the current statute gives EPA the authority to move aggressively in this arena. Such a regulatory framework should give to state and local governments options for disposal of the ash that are protective of human health and the environment. It would be a serious mistake to mandate a single disposal scenario that may not be available to some communities or to exclude the potential for beneficial reuse of ash. Flexibility should be provided to state and local governments to design facilities tailored to the particular hydrogeological characteristics of a given site. Furthermore, local governments currently disposing of ash must be given a sufficient transition period to alter current disposal practices, if necessary, to conform to new regulations. We understand that

EPA is contemplating the issuance of technical guidance for ash residue disposal in the context of Subtitle D. We strongly support the Agency's movement in this direction and call upon the Subcommittee to encourage EPA to issue such guidance as soon as possible.

Also, Mr. Chairman, it is clear to many in the scientific community that the test routinely utilized to determine the characteristics of waste (the EP Toxicity test) does not accurately portray the characteristics of ash under actual field conditions and is therefore an unreliable guide to policy. We would be pleased to supply the Subcommittee technical information to support this finding. Furthermore, many cities and towns have been beseiged with special interest organizations who have taken unrepresentative and unscientific samples of ash residue, and presented to the public data which can not be scientifically defended. All of this has resulted in an exaggerated and distorted view of the ash residue problem and misplaced public concern.

## SOURCE REDUCTION AND RECYCLING

Local and state governments have begun to initiate aggressive recycling and solid waste reduction programs. To assist and expand those efforts it would be extremely useful for EPA to look more closely at the components of successful source reduction and recycling programs as part of an expanded research program with Subtitle D of RCRA.

In addition, the federal government must take an active role in stimulating markets for recycled commodities. The single most important fact about recycling is that a commodity cannot be considered recycled unless there is a market for it. Thus, one of the most difficult problems facing solid waste managers is how to plan for recycling when markets are constantly fluctuating and in some cases even disappearing on an intermittent basis. This problem is aggravated by the fact that the markets for certain recyclable items are national and international in scope. Proper marketing of such recyclables is beyond the expertise of any single town or state. There is clearly a need for the federal government to provide information on all recycling markets because of the tremendous market intervention that will occur from government mandated recycling programs. For certain commodities even more market support will be needed to provide stable, long-term economic conditions that are fundamental to recycling programs run not purely for business reasons, but as an alternative waste disposal strategy.

## ASH REUTILIZATION

We believe EPA should fast track research and funding of demonstration projects for the beneficial reuse of ash residue from waste-to-energy facilities. Many communities will find it difficult to find disposal capacity of any kind for their ash residue because of the difficulty in siting new landfills. We are concerned that private companies will not aggressively pursue such research because ash residue disposal has been a responsibility of local and regional governments. To foster private sector involvement market demand is needed. A successful federal program would include development of market support mechanisms for products including reuse of ash. Many states, including Florida, New York, Massachusetts, and Connecticut are exploring ash reutilization, however augmented federal involvement could greatly speed the process and enhance this very attractive option.

## ENFORCEABILITY OF SOLID WASTE MANAGEMENT PLANS

From the prior discussion, it is clear that state and local governments need guidance, but should be allowed appropriate flexibility in solid waste planning. Many programs, such as source separtion, mixed recycling centers and integrated resource recovery procurements, are being tried for the first time in communities. The learning curve from these initial programs will be tremendous. Under these circumstances the least desirable strategy for Congress would be to restrict prematurely state and local governments to the degree that they would be unable to adapt their programs to changing conditions. Perhaps our greatest concern in this area, Mr. Chairman, is the requirement in the Clean Air Act amendments that local and state government solid waste management plans have the "force and effect of law." This leaves many unanswered questions. As a manager of solid waste, if markets for recycled materials became unavailable, or uneconomical, would I have to seek a change in law to divert the waste to another disposal option? Would state and local governments continually be faced with law suits when opponents of any solid waste disposal option look at a plan and discover that we have only been 95 percent successful in meeting particular requirements? Mr. Chairman, garbage disposal is not always 100 percent predictable and we must be given flexibility to manage our own solid waste disposal system. We would like to work with your staff in determining the intent of these provisions in the Clean Air Act amendments.

## STANDARDS FOR AIR EMISSIONS BASED ON ADEQUATE SCIENTIFIC INFORMATION

Mr. Chairman, we must take this opportunity to voice extreme reservations about the Clean Air Act amendments regarding emissions from waste-to-energy facilities. While not the subject of this particular hearing, the amendments could have a dramatic affect on the future of waste-to-energy plants as a viable component of comprehensive solid waste management plans. It is a dangerous precedent to write emission standards into the law itself. We understand EPA may have reservations about the achieveability of these standards, and we believe that the standards may not adequately take into account the diversity of technology available. We would ask that you hold a separate set of hearings on these Clean Air Act amendments before they go to the floor for full Senate consideration.

## SUMMARY

Finally, we believe that this whole garbage disposal crisis needs to be put into perspective. Local governments are responding with the implementation of innovative programs. While we are faced with opposition groups that will misconstrue data to prevent facilities, even recycling facilities, from being sited in their backyards, we also know that these special interest groups will always be a part of local solid waste disposal politics. What we need from the federal government, particularly Congress and the EPA, is a workable regulatory framework for landfill siting and ash residue disposal, advances in beneficial reuse of ash residue, and assistance in support of recycling and markets. What we do not need is federal legislation that is so restrictive as to undermine comprehensive solid waste management plans at the state and local level, nor do we need emission standards established in law that have not had the benefit of technical and scientific comment through the public comment process.

I can feel nationally the beginning of a real consensus around the integrated approach. It has been endorsed by the U.S. Conference of Mayors, key environmental groups, and by major companies in the resource recovery industry. Any one strategy, though, is not enough. Landfilling alone is no longer sufficient. Resource recovery plants are not all purpose "black boxes." Recycling does not cover all components. Therefore, we turn to you for urgently needed help that will facilitate all of these approaches to create for America's communities environmentally sound and cost effective solid waste solutions.

NRDC

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# Testimony of
# the Natural Resources Defense Council
# on Federal Solid Waste Policy
# before the
# Senate Committee on Environment and Public Works
# Subcommittee on Hazardous Waste and Toxic Substances

Prepared by
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December 3, 1987

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The Natural Resources Defense Council (NRDC) is a national non-profit environmental organization with more than 70,000 members and contributors, and a professional staff of attorneys and scientists dedicated to protecting health and the environment. NRDC has been actively involved in EPA's implementation of the hazardous waste management provisions of the Resource Conservation and Recovery Act. In the course of this work, we have become increasingly concerned about the shortcomings of the federal solid waste program in terms of the degree of health and environmental protection provided. We therefore appreciate this opportunity to present NRDC's views about EPA's current solid waste program under Subtitle D of RCRA and our thoughts about how this program could be improved.

First, the federal criteria for municipal landfills, which are due to be proposed shortly, will fall far short of ensuring the protection against groundwater contamination that prompted Congress in 1984 to mandate EPA to promulgate such criteria. NRDC attempted with limited success to participate in the criteria development process, and what we have seen is regulatory decisions made at the highest level of EPA primarily on the basis of cost and a resurgent policy of anti-federalism rather than out of a commitment to protect human health and the environment.

Second, the entire federal Subtitle D program has been distinguished by a singular lack of both leadership and commitment to environmentally-sound methods of waste-management during a period when much of this nation was developing disposal problems of crisis proportions. This Agency inaction has exacerbated a nationwide trend toward garbage incineration, with all its well-known environmental ills, as the primary means to manage solid waste at the expense of increased recycling and waste reduction. It has become evident that strong federal actions are necessary to help this nation achieve a solution to solid waste management that is protective of the environment and the health of our citizens.

Increasingly concerned about the environmental hazards posed by the universe of Subtitle D facilities, NRDC last year started to follow closely EPA's development of revised criteria for municipal landfills. Given their tremendous numbers, years of regulatory neglect, and the toxicity of much of their waste stream, Subtitle D facilities seemed to pose a threat to groundwater, air and surface water at least comparable to that posed by Subtitle C facilities. According to EPA's Subtitle D Study, as many as 97,354,100 metric tons of industrial organic chemicals[1], 1,300,000 metric tons of household hazardous waste[2], one million metric tons of hazardous waste from small quantity generators[3], and an unknown quantity of illegally-dumped hazardous waste are annually disposed of in Subtitle D facilities.

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[1] Subtitle D Study, Phase I Report, EPA Office of Solid Waste, 530-SW-86-054, October 1986 (hereafter referred to as Subtitle D Study).

[2] Subtitle D Study, ES-5.

[3] Subtitle D Study, 3-19.

Considering the toxic constituents of this waste stream, it is not surprising that, of 48 organic chemicals found in municipal waste landfill leachate[4], 39 are EPA priority pollutants and 27 are on the proposed CERCLA list of the 100 most significant chemicals, on the basis of exposure and toxicity, found at Superfund sites.[5] Data collected by EPA's Office of Solid Waste for development of the proposed municipal landfill rulemaking show comparable levels of many toxic constituents, particularly metals, between Subtitle C and Subtitle D landfills. Yet, despite the hazardous nature of the waste stream, only fifteen percent of municipal landfills have liners, according EPA's Subtitle D Phase I Study. Indeed, according to the Study, the vast majority of present subtitle D waste facilities are sited over groundwater resources, are unlined and lack groundwater monitoring and leachate collection systems, thus assuring the eventual migration of contaminants into drinking water supplies.

It is not surprising that groundwater, surface water, and air contamination violations were found at over twenty percent of landfills investigated.[6] Furthermore, more than twenty percent of the waste disposal sites on the Superfund National Priorities List (NPL) are Subtitle D facilities. Additionally, as many as 2000 municipal waste landfills list meet the criteria for inclusion on the NPL, which is more than twice the number of sites of all kinds as are already on the list.[7]

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[4] Subtitle D Study, 4-13.

[5] 52 F.R. 12866, 12869 (April 17, 1987).

[6] Subtitle D Study, ES-11.

Municipal landfills are not the only class of Subtitle D facilities deserving Congressional and regulatory attention. In fact, industrial surface impoundments may be an even greater problem. These facilities constitute the vast majority of Subtitle D facilities, 85 percent, and accept the bulk of the industrial organic liquids. In 1983, EPA found that "approximately 30 percent of surface impoundments are located in areas that have thin or permeable unsaturated zones, and overlie highly transmissive aquifers containing water that is currently used or of high quality."[8] Yet, less than one-third have any type of liner.[9]

At an early stage in the development of the proposed rulemaking for municipal landfills, EPA's Office of Solid Waste (OSW) conceived a set of criteria that included varying requirements for liners and leachate collection systems depending on the perceived hazard posed by the location of the facility. In a lengthy written analysis, which we offer for inclusion in the record, NRDC criticized OSW's draft criteria as far less protective of health and the environment than Congress has mandated for hazardous waste facilities under Subtitle C, although Subtitle D facilities can and do pose comparable hazards. In addition, OSW's approach was far less comprehensive and stringent than that of many states which are regulating or proposing to regulate municipal landfills, and therefore threatened to undercut these state-level efforts.

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[7] Inside EPA, Vol. 8, No. 27, July 3, 1987, p. 1.

[8] Surface Impoundment Assessment, EPA Office of Drinking Water, 5709-84-002, December 1983, p. 5.5709-84-002, p. 5.

[9] Subtitle D Study, ES-13.

Although the most significant of NRDC's criticisms and suggestions were not incorporated into the draft regulations, OSW's approach was retained until it reached the Administrator's office. There, the cost of the package was heavily criticized by the Agency's own Office of Policy Planning and Evaluation (OPPE) and, to a certain extent OMB, along with many states, municipalities, and industry lobbyists. As a result, and despite our repeated but unsuccessful attempts to meet with the Administrator to discuss our concerns, the OSW approach of design standards for municipal landfills was discarded in a one hundred and eighty degree turnaround.

By the beginning of November, federal requirements for specific types of liners and leachate collection systems at vulnerable locations were eliminated. Although they are the most significant cost item, liner technologies are also chief regulatory requirements for actually preventing groundwater contamination. OSW's recommended requirements for these technologies, the product of considerable Agency effort and time, were abruptly considered no longer necessary to protect human health and environment. Instead, under state programs, landfills will apparently be required only to meet a federal performance standard to assure that there will be no groundwater contamination at a measuring point specified by the state.

EPA asserts that a performance standard will allow the states needed "flexibility" in achieving environmental protection. It also virtually guarantees disparities in the level of groundwater protection provided from state to state because there is no EPA approval process or likelihood of EPA enforcement to ensure that the performance standard will be met in a consistent manner. This approach contrasts dramatically with that prescribed under Subtitle C as well as with the programs underway or proposed in states such as New York, New Jersey and Pennsylvania, which are aggressively attacking the problem of groundwater contamination from solid waste landfills.

Unfortunately, the performance standard approach has long characterized Subtitle D regulation. States have for years enjoyed its "flexibility" with obviously limited success in ensuring environmental protection. Thirty-two states, according to EPA's Subtitle D Phase I Report, have no specific design requirements for liners. It is unclear what convinces the Agency that, when inexpensive landfill space is in such demand, all states will suddenly institute adequate liner requirements after the landfill criteria are promulgated. Finally, the Agency increasingly asserts, as they find more and more industrial wastes exhibiting hazardous characteristics, that such wastes can be handled under a revised Subtitle D program. We hear this even as the Agency is failing in this proposed rulemaking under

Subtitle D to ensure the adequate lining of municipal landfills. This is a far cry from the type of stringent federal regulation Congress envisioned and mandated for comparable problems under Subtitle C.

The landfill criteria issue is symptomatic of a lack of responsibility at the federal level for ensuring that solid waste management in this country occurs in a manner protective of health and environment. This lack of leadership is particularly grievous at a time when several areas of the country, particularly the northeast, have waste management problems of crisis proportions. New Jersey has run so short of landfill capacity that state officials estimate that the state will be shipping 70% of its wastes out-of-state by the end of the year. It is also estimated that, in approximately a decade, all the current landfill space in New York State will be gone. (This is the situation in at least nineteen other states as well.[10]) Yet, New York continues to produce 48,000 tons of solid waste every day (27,000 tons in New York City alone).

No doubt, these states, along with the rest of the country, will find a means to dispose of or otherwise manage their garbage. However, it is increasingly doubtful that the solution will be achieved without significant cost to our health and environment. It is widely agreed that waste reduction and recycling should be the uppermost priorities for waste management

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10. Brown, R.S.B., Dresser-Gagnon, S., Gona, D., Solid Waste Programs In The States, Journal of Resource Management and Technology, Vol. 15, No. 3, September 1987.

programs rather than landfilling and incineration. Estimates of the percentage of the waste stream that could be recycled range up to 70%. Yet, we are witnessing a national flight towards incineration as the central component of future waste management. In a recent survey, more states expected to see larger increases in incineration than in recycling.[11] Across the country, 123 incinerator plants are under consideration, representing a 238 percent increase in current capacities.[12] Even in New Jersey, which recently set a 25% recycling requirement for all communities, 18 incinerators are planned or under construction. One of the most alarming aspect of this interest in incineration is that, for many communities, a commitment to incineration means trading off extensive recycling programs, as each demands substantial capital investment.

Serious questions have been raised about the potential health risks posed by solid waste incineration. Garbage burning emits large amounts of air contaminants, including acid gases, particulates, toxic metals such as lead and cadmium, and organic contaminants, such as dioxin. The list of specific toxic pollutants also includes sulfur dioxide, nitrogen dioxide, carbon monoxide, non-methane hydrocarbons, sulfuric acid, zinc, mercury, formaldehyde, chromium, copper, nickel, arsenic, selenium, beryllium, fluoride, polyaromatic hydrocarbons, PCBs, and polychlorinated dibenzofurans. Even if plants are operating with state-of-the-art pollution controls and at peak efficiency, large mass burn incinerators represent the largest new source of air pollution in most communities to be constructed in years. Although measures to control emissions of several toxic substances from municipal incinerators are presently pending or under discussion in both Houses of Congress, their enactment is highly uncertain at this time.

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[11] Supra n. 11.

[12] Supra n. 11.

An additional problem has been raised by recent data indicating that the ash produced by municipal incinerators and other resource recovery facilities contain dangerous levels of heavy metals and other toxic substances and should properly be handled as hazardous waste. Under RCRA and EPA's regulations, however, it is legal to dispose of such ash in solid waste landfills, which are generally unlined and not designed to contain hazardous substances from migrating into groundwater, surface water or air.

Certainly, a number of states, counties, and municipalities have promoted, even required, recycling programs as important components of solid waste management programs. At least fourteen states have passed legislation that either promotes or requires recycling. Over 500 communities have curbside collection programs. Oregon currently claims to have 2,584 recycling centers statewide.[13]

Although such efforts have proven the viability of recycling, the surge of interest in incineration demonstrates that recycling are not being established fast enough nor to the extent necessary. Despite generating a world-leading 5 pounds of waste per person per day, we remain far behind other countries in our use of waste reduction and recycling programs (only 8% on a nationwide basis). While our better community programs recycle 25-30% of wastes, communities in Germany and Japan recycle 50-60% of their garbage.[14]

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[13] Supra n. 11.

EPA must accept a portion of the blame for the limited success of recycling and reduction and the growing reliance on incineration in solid waste management. The Agency has demonstrated little commitment to a policy of promoting waste recycling and reduction programs over incineration. Under RCRA, Subtitle F, Section 6002, EPA was mandated to issue guidelines for government procurement of at least five product categories by 1985. The Agency has only finalized guidelines for two product categories and they are so vague as to be meaningless. In addition, EPA has allowed their review of state solid waste management programs, mandated under Subtitle D, to stagnate. Furthermore, the criteria for state plan approval never have included such obvious and vital programs as mandatory recycling or deposit regulation. Instead, we have the Agency providing fuel to the incinerator fire by threatening to classify incinerator ash as a non-hazardous waste, despite numerous studies demonstrating that much of this ash meets criteria for

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14. Hershkowitz, A., and Underwood, J., Facts About Solid Wastes, INFORM (1987).

treatment as a hazardous waste. Finally, as we have described in detail, EPA promises to allow states to continue to regulate landfills according to expedient waste management priorities rather than for environmental protection.

NRDC believes that the federal government must play a much stronger role in setting solid waste management on a more prudent and environmentally safe course. Federal actions can significantly ease a number of the technical, financial, administrative, and political difficulties states have encountered with waste reduction and recycling. We recommend that a comprehensive federal Subtitle D program include some or all of the following:

(1) Stringent design-specific federal standards for all solid waste facilities, from municipal incinerators to landfills and surface impoundments. This program should include a strong enforcement component.

(2) Revision of guidelines for state solid waste management programs to include mandatory recycling programs, procurement requirements, and deposit regulation, along with a mechanism to ensure adoption of these plans.

(3) Federal regulatory efforts to reduce the overall fraction of packaging in the waste stream (currently one-third) and increase the recyclability of all packaging. This can be done through

comprehensive packaging guidelines for adoption by industry and states, along with restrictions and bans at the federal level. Federal regulation would be most effective although an increasing number of states are proposing such initiatives, including New York, Connecticut, Massachusetts, California, and Washington. Materials incompatible with recycling (i.e. multi-compositional containers and non-recyclable plastics) will prevent recycling programs from even coming close to recycling the 50-70% of the waste stream that is considered recyclable.

(4) Federal subsidies to encourage recycling. These could take the form of preferential procurement programs, procurement requirements, tax credits (or taxes on non-recyclable or non-recycled goods), and capital investment subsidies. Fifteen states have preferential procurement policies, providing 1%-10% advantage to recycled goods in purchasing decisions.[15] Several states contacted by NRDC claimed that recycled paper costs only 1%-3% more than paper made from virgin materials. A number of these states also require the purchase of recycled products by state agencies.

(5) National standards for recyclable materials. Different state standards for recycled content, such as 50% in Rhode Island, and 10%, 30%, and 45% in succeeding years in New Jersey, depress recycling markets and make recycling industries less

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[15] Supra n. 11.

efficient and less financially viable.

Proper solid waste management is one of the most serious environmental problems confronting the nation today and for the foreseeable future. A strong federal solid waste policy is urgently needed to ensure that the solutions adopted are both permanent and protective of health and the environments. We strongly urge Congress to establish such a policy and to do so through major revisions to Subtitle D, such as those suggested above, when RCRA comes up for reauthorization next year.

ENVIRONMENTAL DEFENSE FUND

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December 3, 1987

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## STATEMENT OF THE ENVIRONMENTAL DEFENSE FUND ON EPA'S PROPOSAL TO EXCLUDE INCINERATOR ASH FROM HAZARDOUS WASTE REGULATIONS UNDER SUBTITLE C OF RCRA

Everyone would agree that a waste that is hazardous in fact must be deemed hazardous under the law. But when it comes to ash generated by municipal solid waste incinerators, the Environmental Protection Agency (EPA) appears ready to reverse this common sense approach by legally excluding ash from the strong protections of our hazardous waste laws.

Recent testing of incinerator ash from incinerators around the country -- including a study released by EPA itself just last week -- has revealed that every single fly ash sample has flunked EPA's long-standing test for determining whether a waste is hazardous, due to the ash's excessive lead and cadmium content. In addition, half or more of all combined fly and bottom ash -- the most common form in which ash is actually disposed -- also flunks the test. Day in and day out, the more than 100 municipal incinerators now in operation produce 10-15,000 tons of this toxic ash.

Lead and cadmium present extremely serious public health hazards, since they are powerful toxins that can impair brain or other vital organ functions, among other severe adverse effects. Children and developing fetuses are especially vulnerable to the effects of lead, because most brain development occurs early in life. This is no academic or remote threat: the U.S. Public Health Service estimates that 2.4 million children (17%) already are experiencing adverse health effects from exposure to environmental sources of lead. Indeed, lead is the single largest cause of environmental disease in America.

Yet despite the compelling evidence that incinerator ash routinely contains high levels of dangerous substances, EPA has given very strong signals that it may soon reverse its existing policy of requiring that ash be tested, and if it flunks, that it be handled as a hazardous waste. Incredibly, senior EPA officials have indicated that the Agency may exclude ash from all of the legal requirements that apply to handling and disposing of hazardous wastes!

EPA doesn't dispute the facts about the amount of metals in ash or the serious public health and environmental dangers from such metals. In fact, in 1985 EPA stated that ash which flunks the hazardous waste tests must legally be handled as a hazardous waste. Only now, after we know that ash is highly toxic, is EPA deciding to exclude it from these legal requirements.

EPA is using legal technicalities to claim that it lacks the legal authority to regulate ash as a hazardous waste. This argument is concocted out of a highly strained interpretation of the generous legal authority that Congress gave to EPA for dealing with hazardous wastes. The fact that the Agency is stretching the legal issue in this way may well reflect a lack of political will to stand up to the powerful incinerator lobby. In any case, such a position clearly runs counter to both the legal and scientific merits of this issue.

Not only would EPA legally exclude ash from hazardous waste regulations; it would do so without providing any alternative requirements for safely handling and disposing of ash that would be legally enforceable. EPA intends to issue nonbinding "guidance" that incinerator operators can follow or not as they choose. No federal, state, or local government agency -- not even EPA itself -- would be able to legally enforce the "guidance" to make sure that incinerator operators dispose of ash properly. In addition, EPA's action would make it far more difficult for citizens to use the courts to force safe ash management.

If EPA declares that ash is excluded from hazardous waste regulations, then it will be left to each state and locality to solve ash management problems on its own. Yet few states have any regulations for ash disposal, and even fewer have adequate ones, even though there are already over 100 incinerators in operation, and hundreds more on the drawing boards.

EPA is under intense political pressure exerted by the incinerator industry and state and local bureaucrats, who see proper ash management as the last remaining "monkey wrench" standing in the way of their plans to use incineration as a cure-all for their trash woes. That short-sighted attitude cannot be allowed to become the law of the land.

ENVIRONMENTAL DEFENSE FUND

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December 3, 1987

## EPA REPORT AFFIRMS ENVIRONMENTALISTS' CLAIM THAT INCINERATOR ASH IS HAZARDOUS

Last week, EPA released a 7 volume report on municipal solid waste (MSW) incinerator ash. The report was prepared by NUS and Versar for the Office of Solid Waste. The study is based on a literature survey, as well as actual testing of:

a) incinerator ash from 4 facilities (unidentified), 3 of them built in early 70s, the other in 1981-2. The incinerators are all equipped with electrostatic precipitators (ESPs), but not acid gas scrubbers. Ashes -- bottom, fly, and combined -- were tested for total metals and organics content, as well as leachable content using three different extraction tests: the EP and TCLP tests, and a distilled water extraction test (called the Monofill Waste Extraction Procedure, or MWEP). In addition, single samples of combined ash from 2 monofills were similarly analyzed.

b) actual field leachates: extremely limited data were collected

3 samples from each of 4 MSW landfills
3 samples from each of 2 "codisposal" landfills that took ash and other waste (only one of these took unburned MSW; the other took sewage sludge)
3 samples from each of 3 ash "monofills"

NOTE: All sites tested were post-RCRA and hence represent best case landfills, that is they did not accept legally hazardous wastes (except, of course, any ash that failed the EP toxicity test!).

### Major Conclusions

### I. Total and Leachable Metal Content

* The ash data entirely supports what EDF has been saying all along:

- Very high levels of lead, cadmium, and other metals were found in the ashes from all 4 incinerators; metals were highest in the fly ash, and were higher in combined than in bottom ash.

- Virtually all ashes tested failed the EP toxicity test defining a hazardous waste:

Fly ash: 100% of the samples tested failed for cadmium
83% of the samples tested also failed for lead

Combined and bottom ash: 75% of the samples failed for lead

* These data are from older facilities equipped only with ESPs: they are not therefore not "state-of-the-art," which in the case of ash means that the ash is cleaner than would be expected from newer facilities; in particular, none of the facilities have acid gas scrubbers or baghouses, both of which are known to increase both total and leachable metal content, and both of which are increasingly being required on new incinerators.

- Thus, the EPA study at best represents the present state of affairs but probably significantly underestimates the near-future state of ash toxicity.

* For the 4 incinerators tested, this part of the study (in contrast to the leachate characterization -- see section III below) appears in general to be based on a sufficient number of properly collected samples to be statistically valid. This is particularly true in light of the more extensive corroborating data available from EDF and others.

## II. Dioxin content

The report includes very disturbing data about the dioxin content of ash from all 4 incinerators. Two measures of dioxins are relevant: A) the measured amount of the most toxic isomer, 2,3,7,8-TCDD; and B) conversion of the measured amounts of all toxic isomers into 2.3.7.8-TCDD toxic equivalents.

A. measured 2.3.7.8-TCDD: 27% of the fly ash samples exceeded the 1 part per billion (ppb) level set by the Centers for Disease Control (CDC) as the safe soil ingestion level. If only this isomer is included, none of the combined or bottom ash samples exceeded this limit. However:

B. 2.3.7.8-TCDD toxic equivalents: All fly and combined ash samples from all four incinerators exceeded the 1 ppb limit when the measurements for all toxic isomers were converted to 2,3,7,8-TCDD equivalents. In fact, in most cases, dioxin content greatly exceeded this limit:

| | |
|---|---|
| - Fly ash range | 21-780 ppb toxic equivalents |
| - Combined ash | 1.3-33 ppb toxic equivalents |

III. Actual Field Leachates: These data are based on an extremely limited data set: for the monofills, 3 samples from each of 3 sites were taken at only one point in time; the data show tremendous variations even at the same site.

If the data show anything, they indicate higher average levels of lead and cadmium in monofill leachates than in co-disposal or MSW landfill leachates, thus suggesting that ash leaches more metals than does trash.

The data available on the monofill that accepts ash from the Westchester, NY incinerator indicate that the levels of lead and other pollutants are going up over time, often dramatically, even during the first year of operation of the monofill; with 20 more years of ash added on top and additional time for leaching, the question is just how high will they get. The EPA study doesn't help, since it didn't track leachate quality over time and therefore can't say anything about trends.

STATEMENT BY

WASTE MANAGEMENT, INC.

Before the

Subcommittee on Hazardous Waste and Toxic Substances

of the

Committee on Environment and Public Works
(United States Senate)

Regarding

Subtitle D of the Resource Conservation and Recovery Act

January 2, 1988

## I. Introduction and Overview

Waste Management very much appreciates the opportunity to offer this statement for the record of the Subcommittee's December 3, 1987 hearing regarding Subtitle D of the Resource Conservation and Recovery Act (RCRA). Waste Management is the world's largest company providing commercial solid waste management and disposal services. We conduct business in most states of the United States, and in many parts of the world. Because of the comprehensive nature of our waste management service, we recognize our special obligation to provide responsible corporate leadership on the many significant and diverse issues facing our industry.

Waste Management strongly endorses the testimony presented in this hearing by the Institute of Solid Waste Disposal for the National Solid Waste Management Association. While many of the Association's concerns and recommendations are echoed in this statement, we have endeavored to provide somewhat more detail in certain areas, such as the nature of federal regulations, solid waste planning and recycling activities. In other areas -- e.g., orphan wastes and interstate waste transport -- we believe the NSWMA testimony furnishes ample detail to apprise the Congress of the issues and the need to examine statutory solutions.

Waste Management's statement focuses on the four major areas in which we believe Congressional interest, and probably statutory amendments, would provide the greatest overall benefits to the national solid waste management effort. These are: (1) federal standards; (2) the national programmatic structure; (3) solid waste planning; and (4) waste reduction and recycling. In each area, we have outlined the apparent problems and opportunities, and have suggested wherever possible the considerations on which we believe Congress should focus in its reauthorization of RCRA.

The issues outlined in the discussion below are not minor ones. This is an important program for environmental protection, and it is in a sorry state at present. RCRA Subtitle D does not need fine tuning; it needs Congressional overhaul. It needs an imaginative new structure, more detailed guidance to EPA, an infusion of resources, and a committment to fully modernizing and expanding the regulation of solid waste disposal.

Waste Management believes the way to start is by facing up to the fact that Congress and EPA thus far have virtually ignored the vast majority of solid wastes and disposal facilities in the country. The RCRA program simply does not address solid waste disposal. By focusing on only sanitary landfills, the program addresses around four percent of the facilities and about one percent of the wastes that should be governed under Subtitle D. Municipal wastes need regulatory attention, to be sure, but the "orphan wastes" described in NSWMA's testimony, probably need far more attention from the standpoint of cumulative environmental impact. Astonishingly, EPA has made a conscious decision to defer regulation of these wastes indefinitely, and we do not anticipate any change in that policy without Congressional intervention and emphasis on expanding the scope of the program.

With respect to municipal wastes, Congress needs to revise Subtitle D of RCRA in at least the four major areas discussed below. The statute needs to direct EPA to issue detailed federal regulations governing design and operation of sanitary landfills. It needs to revise the federal/state relationship so that substantive standards will be applied effectively and uniformly throughout the country. It needs strengthened provisions on planning to avert a continuation of the much-discussed "capacity crisis." And it needs innovative provisions to encourage recycling and other forms of waste reduction. In the following discussion, we address each of these areas in turn.

## II. Substantive Federal Regulations

Without a doubt, one of the most important issues needing Congressional examination is whether EPA should be given more detailed statutory direction for the substantive criteria under Subtitle D that will govern solid waste disposal permitting. We believe the answer is yes. EPA simply is not doing an adequate job. Its regulations are long overdue; its policy approach is seriously flawed; and its overall impact on waste disposal practices will be negligible unless Congress intervenes with more specific and forceful requirements.

A strong, federal regulatory floor is essential in this program. As Congress recognized in 1984 when it directed EPA to revise the Subtitle D criteria, effective regulations are necessary to ensure uniform protection of the environment throughout the states where technical sophistication, resources, and sometimes the political will to regulate are insufficient to meet the challenge. Equally important, we believe strong federal regulations are the critical step toward restoring the public's confidence in waste disposal practices such that needed disposal capacity can be sited and developed in the years ahead.

In many respects, the Subtitle D program resembles some of the major environmental programs Congress examined in the late 1960s and early 1970s, such as the Clean Air and Clean Water statutes: there is obvious potential for environmental degradation; there are tens of thousands of sites requiring close regulatory attention; there is uneven state regulation; and we believe there is a compelling need for federal leadership. Waste Management strongly urges the Congress to provide the statutory mandates that will bring this program up to par with the others that have benefitted from Congressional stewardship over the last two decades.

We believe Congress stopped far short of the mark in crafting the provisions of the 1984 Hazardous and Solid Waste Amendments dealing with the Subtitle D regulatory requirements. Unfortunately, Congress mentioned only three elements of a comprehensive regulatory scheme -- location criteria, groundwater monitoring, and corrective action -- when directing EPA to revise its criteria. EPA thus far refuses to acknowledge that much more is needed, and even for these three elements EPA is failing, we believe, to develop a workable regulatory system.

Waste Management believes Congressional intervention may be necessary in order to ensure that Subtitle D has the appropriate impact on solid waste disposal for the nation. As the largest commercial provider of waste disposal services, and as operators of over 100 sanitary landfills around the country, we also believe we have considerable expertise to contribute to an examination of regulatory approaches in this area. For that reason, Waste

Management developed an extensive proposal and submitted it to EPA nearly a year and a half ago. The proposal provides a complete blueprint for an aggressive Subtitle D regulatory system. We turn now to a discussion of its principal features, and to our assessment of where the Agency is failing to move effectively toward a sound federal foundation for state regulatory activities.

We emphasize, at the outset, that Waste Management is not recommending a list of uniform, mechanical requirements that divest state agencies of the flexibility they need in applying sound technical judgment to the circumstances of a given situation. We also disagree with the suggestion, advanced by a few witnesses before this Committee, that sanitary landfill leachate is sufficiently hazardous to warrant regulatory responses akin to the Subtitle C program; the data simply do not support such assertions. We are recommending, however, that EPA be required to provide a good deal more specificity in its regulations about how state regulators should apply their judgment, and about what types of regulatory controls are needed.

The federal criteria will be effective and implementable only if they contain two essential ingredients: (1) an appropriate combination of performance standards and other types of requirements for addressing the significant, potential sources of health and environmental impacts; and (2) enough flexibility to tailor the application of those requirements to specific facilities, taking into account the variety of factors that will influence the probability of causing adverse effects.

In general, EPA needs to address three questions: what requirements should be applicable to all facilities (existing and new); what combinations of special, more stringent requirements should be applied to new facilities; and what is the appropriate process for assessing existing facilities and addressing any problems that are identified? The regulatory features must be appropriate for each of these categories, and the criteria must be structured to allow for site-specific variations.

The first category of criteria, applicable uniformly to all facilities, would be operating requirements. These requirements should address the fundamental, Congressional concerns that led to enactment of Sections 4004 and 4010 -- the presence of hazardous wastes in sanitary landfills, and the potential for leachate to contaminate aquifers. We believe that responsible operating practices should include, among other things, measures to: (1) identify and carefully manage special wastes; (2) detect and discourage the illegal dumping of regulated hazardous wastes; (3) restrict the receipt of non-hazardous liquids in landfills; and (4) ensure proper closure and post-closure care of the facility.

We are convinced that a facility that employs these procedures will significantly reduce the necessity for other types of controls.

In the second category, requirements for new facilities should be driven to some extent by location standards and other indices of the potential for causing adverse effects on human health or the environment. Location standards should place potential sites for new facilities into one of several classifications, and permit writers should then be directed to address the design and monitoring features of these sites in different ways, depending on the classifications.

Finally, for existing facilities we believe EPA should adopt a baseline groundwater monitoring scheme and a system by which the location standards (or similar criteria) can be used to prioritize facilities for intensive scrutiny to determine corrective action requirements. We believe this approach, which should be mandatory for the States, is the best way to address the thousands of existing facilities for which retrofit requirements simply are impractical.

## A. Operating Requirements For All Facilities

### 1. Procedures for Managing Special Wastes

One of the principal concerns leading to adoption of Section 4010 in 1984 was that wastes which in fact may be hazardous, but are not so designated, will be disposed of indiscriminately in sanitary landfills. We have repeatedly urged the Agency to require that State permit programs include a system for these wastes that will produce deliberate decisions regarding proper management and disposal, as well as records (and eventually a data base) of those decisions. Thus far, EPA has not been willing to include special waste management as a component of its program. We believe Congress should direct the Agency to do so.

Special wastes should be designated in several ways. First, the statute itself should name the most obvious categories -- e.g., incinerator ash, infectious wastes, mining wastes, oil and gas wastes -- and direct EPA to issue management and disposal regulations tailored to each category by a date certain. Second, EPA should be empowered to create additional categories whenever it becomes apparent that a type of waste material warrants management requirements beyond the baseline Subtitle D program. Third, facilities operating under state programs should be required to seek special waste authorizations for any material that falls under a generic definition. The definition used by Waste Management in its internal special waste control program is: any material from a non-residential source meeting one of the following descriptions: (1) a containerized waste (e.g., a drum, barrel, portable tank); (2) a waste transported in a bulk tanker; (3) a liquid waste; (4) a sludge waste; (5) a waste from an industrial process; (6) a waste from a pollution control process; (7) residue or debris from the cleanup of a spill or release of chemical substances or commercial products; and (8) contaminated soil, water, residue, debris or articles from the cleanup of a site or facility formerly used for the generation, storage, treatment, recycling, reclamation or disposal of wastes listed in (1) through (7) above.

The federal regulations should prohibit the treatment, storage or disposal of special wastes at any solid waste management facility except pursuant to the terms of a permit. For wastes designated by statute or EPA regulation, the permit would incorporate, at a minimum, federally promulgated management and disposal requirements. For other special wastes meeting the generic definition outlined above, what is needed is a procedure leading to management decisions on a case-by-case basis.

The federal regulations should specify these requirements for identification and handling of generic special wastes. The requirements need not be unduly burdensome, but at a minimum should place the facility in a position to know how best to store, treat and dispose of special wastes that are authorized under its permit. First, the generator should be required to prepare a profile for all shipments of special waste. The profile should include information on the generator and transporter as well as data documenting the waste characteristics. Second, the receiving facility should have the responsibility to verify information furnished by the generator, including, if necessary, examination of representative samples. Third, the regulations should provide that, except for emergencies, a special waste can be received only if all procedural and analytical requirements have been met and the facility's permit authorizes receipt of that waste. Finally, all of the documents required by these procedures should be retained by the facility until closure is certified.

This procedural approach would move Subtitle D facilities a long way toward proper management of special wastes. Moreover, this system would generate a substantial body of data on how states and facilities are handling special wastes, and place EPA in a much better position to determine whether further adjustments to the Subtitle D criteria are warranted.

Thus far, the Agency has declined to develop even the basic framework for a special waste management program. We would like to see the Congress encourage EPA in that direction.

## 2. Procedures for Excluding Regulated Hazardous Wastes

A second concern driving Congress's adoption of Section 4010 was the potential for illegal dumping of regulated hazardous wastes at Subtitle D facilities. We believe EPA should promulgate requirements that will discourage, and at least create the potential to detect, these practices. Disposal facilities cannot police every load of refuse in great detail, but we believe that visual monitoring, random inspection procedures, and training programs would provide substantial deterrence without serious disruption of facility operations.

EPA should require each facility to implement several measures to detect and discourage illegal dumping. These should include continuous video surveillance of vehicles entering the facility (where appropriate at the facility's or a State's discretion), a random load checking program, recordkeeping of random inspections, training of personnel to spot illegal materials, requirements for handling any regulated hazardous wastes that are found, and precautions to prevent repeat offenses. This recommended program obviously would not catch every attempt to illegally dump regulated hazardous waste. It would, however, deter those attempts and reduce the facility's potential for receipt of such wastes. Because of its modest cost and obvious benefit to the integrity of operations at both existing and new sites, we believe EPA should make it mandatory in the Subtitle D regulations. While EPA's regulations are not yet proposed, we understand that they probably will include some components of this program.

### 3. Restrictions on Receipt of Liquids

The intentional introduction of liquids into sanitary landfills can be one of the most significant sources of leachate generation. As a matter of sound policy and professional operating practices, we believe the statute should direct EPA to promulgate mandatory restrictions on the receipt of liquids. The restrictions should apply especially to existing facilities, which cannot be retrofitted with leachate controls, but they also are appropriate and necessary for new facilities. Because the receipt of non-hazardous liquids is fairly common, EPA might have to phase in these restrictions over time.

Four common sources of liquids should be subjected to the restrictions. The disposal of bulk liquids generated away from the facility, liquids in containers (other than household wastes) and liquids generated at the facility should be prohibited altogether. In addition, municipal sludges with a solids content of less than 20 percent should not be disposed of unless a number of specific conditions are satisfied that would ensure effective containment: leachate collection, management of collected leachate, and disposal practices that result in adequate mixing and absorption of liquids by the refuse.

In our judgment, these restrictions represent the baseline for sound operating practices to manage leachate generation in this industry. They are prudent, prophylactic measures that, when combined with appropriate siting and design features, should reduce substantially the probability of adverse effects on groundwater.

It is not yet clear whether EPA intends to promulgate aggressive restrictions on liquids. We anticipate a ban on bulk liquids, but no meaningful action on leachate re-circulation. The Congress should take a close look at this issue.

### 5. Closure/Post-Closure Care

EPA should establish the procedures and general performance standards governing facility closure and post-closure care rather than leave these issues to the states. The requirements should be highly site specific, but EPA should decide major questions such as applicability, an overall performance standard, mechanisms for planning, provisions for notice to State agencies and local officials, length of care, and restrictions on post-closure land uses. Unfortunately, we understand that EPA does not intend to issue strong regulations in this area.

Facility owners or operators should submit written closure and post-closure plans to the State. The federal regulations should specify the minimum components of a closure plan, including: steps necessary to effect closure and decontamination; time estimates; modifications to monitoring and collection systems; final cover; and cost estimates. The regulations also should specify the grounds for modifying these plans, and should provide for advance notice of closure, a time frame for implementing the plan, certification of completion; and recorded notice to local authorities. Similarly, planning for post-closure care should contain a minimum number of elements, including ongoing monitoring, maintenance, and security. The regulations should specify procedures for modifying these plans, as needed, and for certifying completion of cost-closure care.

* * *

The benefit of these various operating requirements is their cost-effectiveness in protecting human health and the environment. Sound operating practices reduce the need to over design a facility in anticipation of problems (e.g., leachate volumes, toxic materials) that need not arise in the first place. EPA intends to propose a few of these requirements, but as indicated in the discussion above, has no plan for an aggressive system of operating controls in its Subtitle D program. We urge the Congress to examine the area carefully and to encourage the Agency in this direction through greater specificity in the statute itself.

## B. Requirements For New Facilities

### 1. Location Standards

Location standards should be extremely useful decision-making tools in the federal program for encouraging proper siting, establishing permitting priorities, and selecting appropriate design and monitoring features for new facilities. Unfortunately, EPA has taken a very narrow view of the role location standards should play in the Subtitle D program.

The Agency's narrow approach to location standards would involve a handful of restrictions on siting facilities near unsuitable geology (e.g., set backs from faults or other unstable areas), and may include a few design requirements for facilities in areas such as wetlands and flood plains. EPA intends to leave all other location considerations to the discretion of various state agencies. In short, EPA is utilizing this tool only for extreme circumstances rather than building it into the broader structure of federal regulations and making it applicable throughout the range of hydrogeologic conditions encountered around the country. We think this is a mistake.

Locations standards should be made to work hand-in-glove with key design elements of a sanitary landfill. Numerous locational factors are relevant -- not merely unstable geology and innundated areas. The most important factors are those which contribute to groundwater vulnerability, and EPA's approach leaves these entirely to the discretion (and meager resources) of state agencies.

EPA had considered proposing a "categorical" regulation that would require certain design features whenever new landfills or expansions were sited in areas subject to combinations of climatologic and hydrogeologic factors. We believed this approach, while crude in comparison to the more sophisticated model Waste Management had proposed, was a major step in the right direction because it drew the conceptual connection between location factors and design factors.

Unfortunately, EPA now has abandoned this concept altogether. The proposed rule will leave the states without much guidance or assistance in utilizing this important tool. We believe Congress must examine this question closely and develop more detailed directions to EPA on the use of location standards.

### 2. Groundwater Monitoring and Corrective Action

The 1984 amendments quite rightly directed EPA to require groundwater monitoring at Subtitle D facilities, and to include corrective action requirements in its regulations as appropriate. EPA is developing these components in a thorough fashion. While there are numerous important, technical problems in this area, we are encouraged generally by the fact that the Agency is moving aggressively on this issue. We are confident that most of the issues can be resolved through EPA's notice-and-comment rulemaking over the next year.

### 3. Design Features

The proper design of new solid waste management facilities, considered in light of appropriate siting, will be the best precaution against adverse health and environmental effects. We have urged EPA to incorporate requirements for leachate management, liners, surface water controls and gas controls into its revised regulations. The discussion below outlines our specific recommendations in each of these areas.

Unfortunately, EPA intends to leave all of these important questions entirely to the states. The Agency intends to propose a performance standard and then rely on modelling or other techniques to derive design requirements for each site. This approach is beyond the capability of some state agencies to administer effectively, and generally so vague as to add almost nothing to existing state programs. We believe it would be much more effective for EPA to promulgate some minimum design requirements, as outlined below.

### a. Leachate Management

We are convinced that a leachate management program should be required for any new facility where the permitting authority concludes that leachate will be generated. The details of each facility's program will vary, in part depending on siting factors, but the requirement to design for some sort of leachate management should depend strictly on whether leachate will be generated.

Final cover is an extremely important feature of leachate management. The federal regulations should require that final cover be designed, installed and maintained to reduce infiltration due to precipitation, and the design factors to be considered should be specified for minimum cover thickness, maximum and minimum slopes, and minimum uppermost cover thickness.

The leachate collection system, if required, should meet performance standards. We have recommended standards for collection efficiency and construction materials. We also have recommended minimum requirements for inspections of the system, and a requirement for certification of the system's construction by a certified professional engineer.

Leachate storage requirements should be included to ensure that leachate removed from a unit does not create the same kinds of groundwater problems which the regulations seek to solve for landfills. We have recommended that any facilities lacking provision for continuous discharge to a wastewater treatment facility should be required to have enclosed-tank storage with capacity for at least five days of leachate at the maximum generation rate.

Finally, we think EPA's regulations should require that a leachate management plan be developed, and approved by the state, for all new units. Minimum requirements of the plan should include: a documented calculation of expected leachate quantity, assessment of leachate quality (as available), and detailed procedures for leachate removal, transportation, treatment, and disposal.

### b. Liner Requirements

All new units at which leachate will be generated should be required to install a liner. We have recommended that EPA specify the overall liner requirements as a performance standard: equivalent in performance to a ten-foot-thick layer of soil having a saturated hydraulic conductivity of $10^{-6}$ cm/s operated under a unit gradient. In addition, natural geologic or recompacted soils used without synthetic membranes should have a minimum thickness of three feet, irrespective of the hydraulic conductivity. In addition to this standard, we have recommended that EPA include requirements for construction materials, a construction quality assurance plan, and construction certifications.

The federal liner requirements should acknowledge the additional degree of groundwater protection afforded by environmentally preferred locations. This could be in the form of a standard, or a least a presumption, providing that new units at such sites need not employ synthetic membranes. The natural or recompacted materials used at these units still should met the hydraulic conductivity and thickness requirements, discussed above, and states are of course free to impose more stringent standards as warranted by site-specific considerations.

### c. Surface Water Controls

Surface water controls should be applied at the permit stage for new solid waste disposal units. We believe existing units should meet the same requirements, but have recommended that EPA consider a delayed compliance date to allow for planning, and to permit construction to be phased in.

The regulations should require drainage systems that will accommodate the design storm without overtopping. In addition, sufficient freeboard should be required to accommodate expected set-up and wave action. The regulations should require diversion of all run-on around the unit by means of ditches, berms, dikes or grading. Surface water bodies should be relocated to flow around the perimeter of the unit, as authorized by state and federal law. Finally, EPA should require that state regulations and permits ensure that expected precipitation falling on a site will be managed so as to minimize contact with any exposed waste material.

### d. Landfill Gas Monitoring and Control

We believe landfill gas warrants EPA's attention in the revised regulations, and understand that the Agency intends to include some requirements. EPA should adopt specific performance standards and monitoring requirements, as well as control measures that are necessary to meet the standards.

The performance standard should contain concentration limits to be applied at two distinct points. Concentrations of explosive gases beneath, around or in facility structures (excluding gas control or recovery components) should not be allowed to exceed twenty-five percent (25%) of the lower explosive limit (LEL) for methane (i.e., 1.25% methane by volume). At the property boundary (or perimeter of a dedicated buffer zone), concentrations should not exceed the LEL (i.e., 5.0% methane by volume). We believe adherence to these limitations will ensure the safety of employees, nearby structures, and people near the site.

### C. Review of Existing Facilities

Federal regulations should address existing facilities primarily through uniform operating procedures, as described above, and groundwater monitoring to identify any sites needing corrective actions. There simply are too many existing facilities, and the cost impacts obviously are too great, to entertain the notion of retrofitting these sites with the advanced design features discussed above. Instead, EPA must adopt an approach that establishes priorities for reviewing existing facilities, requires baseline groundwater monitoring according to a phased schedule, and singles out identifiable problems for more detailed scrutiny. Thus far, the Agency appears to be headed generally in this direction, although we believe it should make more effective use of location standards for structuring its priorities.

Groundwater monitoring is a central feature of this approach. We do not believe EPA can develop a data base, or any other defensible justification, documenting the necessity of requiring an extensive groundwater monitoring program for all existing facilities. We do believe EPA easily can justify the need for a baseline monitoring program to develop that data base, and to place the Agency in a position to decide, several years hence, whether more extensive monitoring should be required routinely.

Moreover, we are convinced that EPA must phase in the baseline groundwater monitoring requirements for existing facilities. Phasing will be necessary especially if the Agency regulates the many thousands of surface impoundments and other Subtitle D facilities we believe should be addressed. There will be a severe shortage of well construction materials, construction contractors, and laboratory capacity if EPA requires anything more than a modest program for tens of thousands of existing facilities, or if EPA neglects to phase in these requirements.

In order to prioritize existing facilities for implementing the baseline monitoring program, we have recommended that EPA rely on location criteria as well as the relevant factors for risk identification that should be employed in the corrective action program.

Each existing facility should be required to send the state sufficient information to support an evaluation under location criteria, as well as the factors relevant to a risk identification, as available. The states then should be required to publish a ranking of all existing sites into three categories: high priority, medium priority, and low priority. Any facility failing to submit the required information automatically should be assigned the high priority classification. EPA's revised regulations should direct the states to require that a baseline monitoring program be implemented by high priority sites within 90 days after publication of the list. Medium priority sites should be given two years, and low priority sites should be allowed five years.

The baseline monitoring program should include: three monitoring wells (two hydraulically down-gradient and one hydrogeologically isolated), and quarterly sampling for one year. This program should constitute the initial data-gathering phase for all existing facilities. Following the fourth quarter of monitoring, owners or operators should be required to submit a plan for a full monitoring program if warranted by the data.

We believe this is a rational, workable, and reasonably expeditious approach to phasing in the groundwater monitoring program for existing facilities. It is consistent with Congressional guidance, and should identify problem areas that need to be corrected by the sates.

## III. THE SUBTITLE D PROGRAMMATIC STRUCTURE

In the press of its efforts to direct EPA's implementation of the RCRA Subtitle C program, Congress has paid comparatively little attention to Subtitle D implementation. The time is overdue to remedy this oversight. If the Subtitle D program is to attain the goal of consistent protection of human health and the environment by means of rigorous standards enforced throughout the states, Congress must take a more active role in guiding not only the substantive regulatory standards, but also the means by which these criteria will be implemented by EPA and the states.

The Subtitle D program has been handicapped thus far by two central problems: uneven state utilization of EPA's Subtitle D criteria, and EPA's failure to remedy the states' inadequacies.

## A. Uneven State Implementation

Unlike nearly every other environmental program crafted by Congress in the last 20 years, RCRA Subtitle D limits the federal role to issuing guidance, and relies entirely on state implementation. In 1979, EPA promulgated what now are considered rather rudimentary guidelines for solid waste management, and the states to a large extent were left to their own devices to turn the guidelines into workable regulatory programs. The result has been a patchwork of state programs, ranging from a program in California that nearly matches RCRA Subtitle C in complexity and rigor, to the simple registration required by New Mexico.

EPA itself has recognized and studied the reasons for the states' widely varying approaches to Subtitle D regulation. In its report to Congress on the Subtitle D program,[1] the Agency noted that an average of 2.6 agencies per state are responsible for Subtitle D activities. Moreover, few of these agencies have a specific budget for Subtitle D activities. EPA's poll of the 141 agencies charged with Subtitle D responsibilities resulted in an estimate that each state spends approximately $785,649 developing, regulating, enforcing, or overseeing a solid waste management program. At that rate, approximately $170 is spent on direct and indirect regulation of each of the 230,000 Subtitle D management and disposal facilities in the United States.

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[1] EPA, Census of State and Territorial Subtitle D Non-Hazardous Waste Programs, October 1986 (EPA/530-SW-86-039).

This level of state resources for Subtitle D implementation is demonstrably inadequate, and the problem is particularly acute in terms of the resources devoted to articulating regulatory standards. According to EPA's 1986 report, the majority of state resources (41%) are devoted to Subtitle D enforcement activities, with approximately 28% of state resources devoted to permitting facilities and a mere 4.5% (or $35,354 per year in the average state) devoted to developing the regulations that form the basis for all permitting and enforcement activities.

Moreover, despite the states' emphasis on enforcement, only 30% of all Subtitle D facilities were inspected in 1984, the year surveyed in EPA's 1986 report. EPA found many facilities (e.g., industrial facilities handling waste on-site) wholly unmonitored by any state agency, while others (notably municipal landfills) subject to frequent inspections. The state agencies in fact tend to devote their attention to facilities, like municipal landfills, already subject to substantive standards -- perhaps because these regulations require or encourage voluntary collection of data easily reviewable by the state. Ironically, on-site disposal activities exempt from permit requirements and therefore exempt from substantive environmental controls are generally the sites least monitored by the state.

If the solid waste management facilities subject to the least environmental control are to receive attention at least equal to that given municipal waste management facilities, states must be directed to extend regulatory standards to all potential Subtitle D facilities, and they must have resources necessary to accomplish this task. This is unlikely to happen, however, unless Congress mandates evenhanded, comprehensive state regulation of Subtitle D facilities.

## B. EPA's Limited Role under Subtitle D

Assuring evenhanded and effective state regulation of all Subtitle D facilities is not a simple matter of finding the money for and imposing legal obligations on states. As a practical matter, it may be impossible for all states to amass the resources and expertise necessary to develop and implement the comprehensive regulatory program we have described above in this statement. This kind of aggressive, fully protective Subtitle D program may be possible only if EPA's heretofore limited role in Subtitle D implementation is enhanced.

Recognizing the need for federal action to upgrade and standardize the Subtitle D program, Congress in 1984 directed EPA to revise the baseline federal criteria under which Subtitle D facilities receiving hazardous wastes will obtain state permits. Given the limited resources states have been devoting to development of Subtitle D regulations, it is critical that the federal government provide a comprehensive, technically sound, and relatively detailed set of criteria that the states merely have to adapt to state circumstances.

As we have discussed previously, we believe federal guidelines addressing the broad range of design and operating features necessary to assure environmental protection will allow states with limited resources to develop workable, effective Subtitle D permit programs. And as we emphasized throughout the discussion above, EPA is not moving toward developing those guidelines.

If EPA's revised Subtitle D criteria apply only to facilities handling household or small quantity generator hazardous wastes, however, these efforts to upgrade the Subtitle D criteria will have limited impact on the problem of uneven enforcement. The revised criteria must apply to all solid waste management facilities -- public and private, municipal and industrial waste, on-site and off-site -- if state programs are to be effective in preserving public health and the environment. This scope of application not only must derive from federal statute, but it must be monitored throughout the states by EPA.

EPA also needs to provide technical and regulatory advice to supplement the limited resources and expertise of the states. As we noted earlier, the state resources dedicated to Subtitle D issues have proven to be inadequate in most cases, and in all cases states could benefit from EPA's technical expertise. EPA's current regional organization is well suited to bring the Agency's scientific expertise to bear on permitting issues raised in the states.

This regional advisory role is beyond EPA's capacity at present, however. EPA's current FY88 budget anticipates only 12.7 full-time employees and $2.605 million for Subtitle D efforts, most of which will be spent on studies mandated by the Hazardous and Solid Waste Amendments of 1984. No resources are allocated to Regional Offices for state support and program oversight.

These minimal resources perhaps reflect the Agency's limited statutory role in monitoring the adequacy of Subtitle D implementation. Under the terms of Section 4010(c) of the 1984 Amendments, EPA may intervene to bring action against a poorly designed or operated Subtitle D facility only after finding the entire state program inadequate. We believe that this limited role must be expanded.

### C. Needed Congressional Action

Waste Management, urges Congress to act promptly to resolve these Subtitle D programmatic inadequacies by giving EPA clear authority over, and direction concerning, RCRA Subtitle D oversight. The first issue to be addressed obviously is the federal/state interplay in the Subtitle D program. How can the Subtitle D program ensure consistent, protective regulation while maintaining the flexibility to respond to the circumstances presented in each state? We urge Congress to review the experience of other major environmental programs -- RCRA Subtitle C, the Clean Air Act, and Clean Water Act -- for models achieving a balance between federal standards and state implementation.

Second, Congress must address the fact that EPA can oversee implementation of, and provide technical advice on, Subtitle D standards only if it has the requisite resources.

This is a major federal program for environmental protection, but it is not funded at anywhere near the level of others administered by EPA. Even in today's cost-conscious budgetary climate, the Congress either must address this resource question or settle for a continuation of haphazard, inadequate Subtitle D regulatory efforts.

When evaluating potential sources of funding for an expanded EPA role, it should be noted that the majority of states already finance their current programs by means of a tax on permitted landfills. If only a subset of Subtitle D facilities -- primarily municipal landfills -- continue to be subject to permit requirements, a further tax on such permits would serve to channel some solid waste to unpermitted, and therefore essentially uncontrolled, management and disposal facilities. We do not believe further taxes on the limited base of sanitary landfills makes sense environmentally or in terms of equity, and such an approach is not likely to produce the revenues needed in any event.

## IV. Solid Waste Management Planning

While most attention is focused on environmental regulation, it is important to remember the crucial role that state and local planning plays in solid waste management. The RCRA reauthorization process provides an opportunity to re-invigorate solid waste planning as part of the solution to the solid waste crisis.

### A. Introduction

Since 1976, RCRA has mandated the development and implementation of state and regional solid waste management plans intended to establish environmentally sound disposal practices while maximizing productive use of available resources. RCRA Section 4002(b). EPA's role was to provide the states with technical and financial assistance as well as provide approval of those state plans meeting promulgated criteria. RCRA Section 4002, 4003, 4006. States developing approvable plans were to be eligible for financial assistance. Since 1981, when appropriations for financial assistance ceased, states have had no incentive to complete or gain approval for their plans.

Many states historically have addressed solid waste management planning as contemplated by the RCRA legislation and the consequent EPA regulations. 40 C.F.R., Part 256. That is, solid waste management planning focused on institutional roles, environmental safeguards, and promotion of resource recovery (incineration with power generation). Implementation of these plans had two significant results:

open dumping[2] virtually disappeared in most states, and resource recovery reemerged in principle as a potential solution to solid waste capacity problems. U.S.E.P.A. Report to Congress: Municipal Waste Combustion Study, June 1987.

Despite the success in closing open dumps, however, there was a continuing concern that toxic constituents could still find their way into the solid waste stream. As a partial solution, Congress in the Hazardous and Solid Waste Amendments of 1984 directed EPA to revise its criteria for disposal facilities that may accept household hazardous waste or small-quantity generator waste. HSWA Section 4005. At the same time, resource recovery was promoted through clarification of the conditional exemption of resource recovery facilities from hazardous waste regulations. HSWA Section 3001(i). With these two exceptions, however, the 1984 amendments had little impact on the planning process.

Meanwhile, several forces were at work that brought into question the capability of existing state planning structures. To begin, the movement away from open dumps to sanitary landfills meant that the "good" existing landfill capacity would be used up all the more quickly. With the cost of using limited landfill space soaring,[3] and faced with growing volumes of waste due to population and economic growth and commercial practices (i.e., packaging),[4] communities turned to resource recovery facilities at an explosive pace, and found the same problem associated with siting new landfills: the difficulty in finding a socially and politically acceptable site.

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[2] Open dumps are disposal sites that do not meet EPA and state criteria for proper location, design, and operation. See National Conference of State Legislatures: Capsule Overview of Solid Waste Management, June 1986.

Planning initiatives for waste reduction and recycling may provide some relief to the capacity problem, but only modest results have so far (see further discussion below) been documented for broadly applied programs.

The problem remains of providing long-term capacity in the face of severe public opposition to both modern landfills and resource recovery facilities. In the interim, communities have resorted to (1) extending the use of existing facilities, even, perhaps, if environmentally unsound or marginal, or (2) resorting to long-haul disposal[5] to distant states and at great expense.

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[3] National Solid Waste Management Association Technical Bulletin 87-1: 1986 Tip Fee Survey.

[4] U.S.E.P.A. Subtitle D Phase I Report, October 1986.

[5] See, for example, Testimony of M. Donald Deieso, Assistant Commissioner, New Jersey Department of
(Footnote Continued)

In this context of spot emergencies in landfill capacity (of which the garbage barge is a dramatic example) expensive alternatives, and public opposition to all local land-based alternatives, the planning process is overwhelmed.

B. Purpose of Planning

Recent criticism of solid waste management planning has often focused on the limited number of state plans (approximately 25) which have been processed through the EPA "approval" stage. Ostensibly, a more intense effort on the part of EPA and the states to prepare and approve plans would have mitigated the solid waste "crisis" faced by many communities and states.

However, the procedural failure is only symptomatic of a more substantive failure on the part of the solid waste planning process. In fact, many states with approved plans are having, or are on the verge of having, true solid waste crises: environmentally sound and economically reasonable disposal facilities are not being built in sufficient numbers. Instead, the environmental shortcomings of

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(Footnote Continued)
Environmental Protection before the Subcommittee on Transportation, Tourism, and Hazardous Materials, House of Representatives, October 21, 1987.

outdated technologies for both incineration and landfilling are used to oppose siting and construction of better designed and located facilities. (The City of Philadelphia's experience with incineration is instructive on this point.)

In sum, the original purpose of solid waste management planning -- environmentally sound management practices -- is unfulfilled, not through lack of technological capability, but through state and local decisionmaking processes that inhibit or preclude adequate replacement capacity.

Changes in legislation and regulation must recognize this problem and re-orient the purpose of solid waste management planning to _first_ _ensure_ _adequate_ capacity for the solid waste residuals that remain despite best efforts at reduction and recycling, and to provide environmental safeguards and economic discipline to the process. This effort need not interfere, in any way, with initiatives for waste reduction and recycling. It simply ensures that the states and communities have analyzed and formulated the institutional arrangements to manage all their waste under all likely circumstances of waste generation.

### C. Needed Statutory Changes

The re-orientation of solid waste management planning we are discussing cannot be accomplished without inducements from Congress and EPA. We believe Congress should consider amendments to RCRA Subtitle D that do the following:

1. Promote a re-examination and/or completion of all ongoing planning processes.

Specifically, EPA should be given authority to "call in" all state plans by a date certain. If EPA is given authority to revise planning requirements (discussed below) within 12 months of date of enactment, then all plans can reasonably be revised and completed within 30 months of date of enactment.

2. Provide incentives to states to ensure that each state demonstrate the capability to adequately process and dispose of all residual solid waste for a period of up to twenty years.

Congress should consider the several forms of incentives (grants, technical assistance from EPA), as well as disincentives (growth sanctions such as found in the Clean Air Act, grant restrictions or losses from other federal programs, loss of delegation of other federal environmental programs) to assure compliance with planning requirements. A mandate similar to Section 104(k) of the Superfund Amendments and Reauthorization Act may also be appropriate.[6]

3. EPA should be given clear direction to revise existing planning requirements.

At a minimum, state plans should be required to:

a. Establish waste management hierarchies to promote waste reduction and recycling prior to analyzing ultimate capacity requirements. Through such a process, waste incineration or disposal would not serve as a disincentive to practical reduction and recycling efforts.

b. Establish institutional decisionmaking processes that preclude local veto powers over properly sited and designed waste management facilities.[7]

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[6] Specifically, loss of Superfund remedial funds in states that do not assure sufficient hazardous wastes capacity for twenty years.

[7] New York's plan, for example, recommends that counties be given three years to site needed facilities or the state be allowed to preempt siting, design, and operation of facilities at cost to the local government. New York State Solid Waste Management Plan (March 31, 1987), New York State Department of Environmental Conservation.

c. Establish environmental and economic analyses as the primary basis for siting, design, capacity, and other permitting requirements.

4. Declare a moratorium on state law or regulation designed to minimize or eliminate the flow of solid waste across political or other arbitrarily defined boundaries unless demonstrated to be based on environmental or public health emergency grounds. An appropriate moratorium period would be five to seven years. The need for a moratorium is a matter of equity and sound management practices. Many states in the Northeast, for example, are making significant efforts to manage all wastes generated within their boundaries. Nonetheless, states such as New Jersey may need to continue to export a considerable percentage of their waste until solid waste management plans are fully operational. The ability of New Jersey to transport wastes across state lines is not a disincentive to proper planning but a necessary short-term solution until long-term solutions may be put in place. If all states were to ban waste imports, serious economic dislocation would likely result. States which are net exporters of waste would not engage in deliberate long-term planning but would seek any expedient solution to their problems, perhaps including environmentally questionable disposal practices. Waste bans are not an incentive to better planning; they are an exercise in non-cooperation among states to solve a

problem that knows no political boundaries. As it is doing in its attempt to solve the acid rain problem in a fair and deliberate manner, Congress should provide a national mandate for waste management cooperation by placing a moratorium on waste bans for at least five years.

## V. Reduction of Municipal Solid Waste

### A. Overview

The amount of municipal solid waste discarded in the United States has grown unfalteringly over the last few decades, from about 78 million tons in 1960 to over 130 million tons currently.[8] This amount is expected to rise to 160 million tons by the year 2000. Source reduction has essentially been absent from the national agenda. Recycling, on the other hand, has come and gone and then come back again, responding with volatility to changes in demand for used items.

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[8] U.S. EPA. Resource Conservation and Recovery Act Subtitle D Report to Congress. Phase II, Final Draft. May 28, 1987 ("EPA Subtitle D Report II"). Figure 3-1.

Waste reduction, used here to mean source reduction and recycling, is now a priority that can be expected to endure. It has been elevated by increased costs of incineration and disposal and by circumspection concerning the number of new incinerators and new landfills that can be subjected to political attention and still be permitted.

Waste reduction is not a panacea for the problems created by waste. EPA's estimate of increased future disposal excludes amounts expected to be recycled. Furthermore, representative municipal waste recycling programs in this country have not exceeded 25 percent disposal volume reduction, including yard wastes, even in cities where programs are heavily subsidized and participation is mandatory. Typical curbside source separation programs in this country are achieving 8 to 10 percent residential disposal reduction.

One recent study by INFORM, Inc. generally makes the case that Japan is leading the way for the rest of the world in management of municipal waste. The study states that recycling may reprocess "as much as 50% of Japan's wastes." The study also points out, however, that of the waste not recycled, 68 percent is burned in Japan's 1,915 incinerators (with ash residue landfilled as aggregate), 30 percent is landfilled directly, and 2 percent is disposed of by "other means."[9]

Perhaps Japan is leading the way.[10] If so, the message is that our country should increase the shares of municipal solid waste that are recycled and incinerated, while preserving landfill capacity for ash and other remaining wastes. Waste Management, Inc. subscribes to this goal and is aggressively expanding its recycling activities.[11] The company is also working to advance public policies that will enhance source reduction and recycling of municipal solid waste. The remainder of this analysis discusses priorities and options in waste reduction and suggests federal policy initiatives that might be adopted by the Congress.

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[9] Allen Hershkowitz and Eugene Salerni. 1987. Garbage Management in Japan: leading the way. INFORM, Inc. New York, New York. Page 5.

[10] INFORM notes, however, that Japan's solid waste management is affected by geography. A "population one-half that of the United States living in a land area equal to California, but with only 21% of the land habitable." According to the study, the "nation has only a few years of total landfill capacity left." Dependency on costly imports is also noted as an incentive for recycling.

[11] At the end of 1987, WMI participated as a contractor in approximately 150 municipal solid waste recycling operations. The company plans to increase this number to 400 by the end of 1988. Among these is the largest curbside source separation program in the country, serving 180,000 homes, operated by WMI's Recycle America subsidiary under contract to the City of San Jose, California.

## B. Source Reduction: Opportunities and Priorities

Waste reduction encompasses source reduction and recycling. Source reduction refers to practices that reduce the volume or toxicity of waste before recycling, treatment or disposal. Volume reduction could be achieved by increasing durability (*e.g.,* as has been done for automobile tires) or, consistent with durability, simply by using less material in the manufacture of goods or in other enterprises (*e.g.,* advertising, entertainment and education through electronic media rather than print). Use of fewer disposable goods (*e.g.,* razor blades, diapers) or containers (*e.g.,* paper cups, plastic bottles holding a few screws or nails) would reduce waste volume at the source.[12]

Some changes reducing waste volume, such as making better tires, would appear difficult to contest. Other changes, such as a return to washable cloth diapers, would be resisted by some end users. The morning newspaper may provide information not available on television.

Waste producing options for some goods and services bring more benefits than for others. No simple compelling formula exists for reaching the generally laudable goal of reducing waste volume at the source, when toxicity is not an issue. Consumer education does have a role. We would reduce waste as a nation if people thought twice about buying items with unnecessary packaging and excessive bulk. Governments could help facilitate and support that education and the result might be a very cost effective tool for waste reduction.

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[12] Whether a diaper is a good or a container, or both, could be debated.

Reduction of toxicity at the source is another matter. Among waste items of priority are various special wastes that are sometimes placed in municipal solid waste landfills. These include industrial wastes, small quantity generator (SQG) wastes, and municipal sludge. Household hazardous wastes are also receiving increasing attention.

The SQG wastes, for example, include lead-acid batteries, spent solvents and dry cleaning filtration residues, photographic wastes, waste formaldehyde, and many other waste streams. EPA estimates that about 940,000 metric tons of SQG wastes are generated annually. Most of these wastes are recycled, but the agency estimates that about 5 percent of them are disposed of off-site in solid waste facilities, including municipal landfills.[13]

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[13] EPA Subtitle D Report, Phase I, pages 3-16 to 3-20.

The toxicity of these special wastes varies widely and their environmental impact in landfills is not well understood. Reduction of their toxicity at the source is desirable, however, and is virtually as broad a problem as the overall issue of hazardous waste source reduction. Consequently, source reduction strategies for hazardous wastes in general are applicable to this matter, such as those being developed by EPA,[14] by the Office of Technology Assessment,[15] by various others such as the Environmental Defense Fund,[16] and by the Congress.[17]

Among wastes familiar to the public, special attention may be warranted for paper printed with colored inks containing heavy metals, for batteries, and for some plastics.[18] Paper and paperboard constitute about 50 million tons or more than 37 percent of municipal solid waste disposed of annually, most in municipal landfills.[19] About 10 million tons of the paper wastes are old newspapers. Ink pigments in paper may contain lead, cadmium or chromium. Discarded cylindrical and button-shaped batteries also are sources of cadmium, and of mercury and nickel. Plastics may contain cadmium or other metals as stabilizers or as other additives. We lack precise data on the quantity and environmental effects of heavy metals in these sources, although it is clear that human exposure to lead from paper trash is very small in comparison to other sources, especially flaking lead-based paint. However, the Congress could wisely undertake efforts now to facilitate heavy metal reduction in paper, batteries and plastics.

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[14] Minimization of Hazardous Waste. Report to Congress. U.S. EPA. October 1986. EPA/530-SW033.

[15] Serious Reduction of Hazardous Waste for Pollution Prevention and Industrial Efficiency. OTA. September 1986. OTA-ITE317. Also From Pollution to Prevention: A Progress Report on Waste Reduction. OTA. June 1987. OTA-ITE-347.

[16] Approaches to Source Reduction of Hazardous Waste: Practical Guidance from Existing Policies & Programs. Environmental Defense Fund. 1986.

[17] E.g. H.R. 2800, the Hazardous Waste Reduction Act, introduced by Rep. Howard Wolpe and others in June 1987.

[18] Municipal Waste Combustion Study. Report to Congress. U.S. EPA. June 1987. Pages 37 and 38.

## C. Recycling: Opportunities and Priorities

### 1. Introduction

Recycling refers to practices providing for re-use of materials that have been generated and that would be abandoned if those practices were not undertaken.

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[19] Guidelines for Recovered Materials Content in Paper Products Procured by the Federal Government. U.S. EPA, 52 Fed. Reg. 37294, October 6, 1987.

Post-consumer discards currently recycled in the United States include old newspapers, aluminum cans, steel cans, glass bottles, plastic bottles, yard wastes, lead-acid batteries and used tires.

Recycling can be impeded by technical limits in re-use and lower value of goods or containers made of several materials or containing toxic compounds. Paper is often impregnated with plastics, for example, and ink pigments may contain heavy metals. Soft drink bottles commonly have high-density polyethylene bases and different polyethylene terephthalate tops, complicating recycling. Recycling would be enhanced by modifying manufacture to minimize such problems and by innovation in technologies for separation of different materials.

The ultimate governor of recycling activities is the marketplace. Some recycling is currently profitable. Old corrugated containers, for example, bring a price well above recycling costs. Recycling programs for residential aluminum can discards operate without subsidy, as do current old newspaper and old corrugated recycling programs. Other items, however, are in less demand. Steel cans, for example, traditionally have not been profitable to recycle. Recycled newspapers, although in demand now, have varied greatly in value, and sometimes have been collected for recycling only to be landfilled when buyers cannot be found.

More favored treatment by government (subsidies and procurement requirements for recyclable materials; elimination of subsidies for virgin materials that compete with recyclable materials) is apparently necessary to provide a high level of recycling over the long-term. Such stimulation of demand is particularly critical in light of the rising supply of recyclable materials that new collection and processing programs will generate.

### 2. Principal Recycled Items in the United States[20]

Paper. Approximately 15 million tons of post-consumer waste paper are recycled each year, in addition to 7 million tons of industrial paper waste. Overall, about 28 percent of paper is recycled. About 18 million tons of this total are used domestically and 4 million tons are exported. Another 50 million tons of paper and paper products are disposed of annually, constituting about 35 percent of all municipal solid waste discards.[21]

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[20] Unless otherwise noted, statistics in this section are from the Multi-Material Recycling Manual. Revised 1987. Keep America Beautiful, Inc. Most of the items in the section are post-consumer residential discards. Corrugated boxes, lead-acid batteries, and tires are used by residential consumers, but are typically collected for recycling from commercial accounts.

[21] EPA Paper Procurement Guidelines, footnote 12 supra, page 37294.

Waste paper is mixed with water at paper mills in a tank with rotating beaters on the bottom. The paper fibers separate and form a slurry, similar to virgin wood pulp. The pulp is then cleaned, washed and sometimes "deinked." Recycled paper and paper products cannot be distinguished from virgin materials by typical users, although recycled fibers tend to be shorter and paper made of them tends to be less strong and more opaque than virgin fiber paper. Recycled paper that has not been deinked can be made into gray paperboard for uses such as cereal boxes or writing pad bases. Lower quality paperboard from mixed paper wastes is used in wallboard.

Aluminum Cans. In 1981, more than 1 billion pounds of aluminum (24.8 billion cans) were recycled, exceeding 50 percent of the cans produced. By the 1990's, the aluminum industry expects that 75 percent of aluminum beverage cans will be recycled into new cans or into other aluminum products. Aluminum is very profitable to recycle, selling at 10 times the price of paper.

Steel Cans. Steel scrap accounts for about 50 percent of raw materials used to make new steel. About half of the scrap used is generated within steel mills. The other half, about 30 million tons, is purchased from outside sources. Half of that amount is post-consumer scrap, including automobiles, appliances and cans. Only very small percentages of steel cans were recycled until recently, but can recycling is now increasing.

Glass Bottles. About 2.5 billion pounds of glass (5 billion containers) are collected annually and remelted with raw materials to make new glass containers. This is four to five times more than the amount recycled 10 years ago. Used glass containers (cullet) are most profitably employed as a substitute for raw materials in making new containers. Fiberglass and other products, however, are also made. Raw materials for glass manufacture are abundant (sand, soda ash and limestone), but energy savings are substantial when cullet is used. Cullet recycling is more profitable if different colors of glass are not mixed (clear or flint, amber, and green).

Plastic Bottles. Plastic soft drink bottles and milk bottles make-up the bulk of post-consumer plastics recycling. About 20 percent of soft drink bottles were recycled as of 1984. The bottles are made of polyethylene terephthalate (PET) and, sometimes, a high-density polyethylene (HDPE) base. The Plastics Recycling Institute in New Jersey operates a small plant where a process for separating PET from HDPE has been demonstrated. Milk bottles are made of HDPE.

Plastics from recycled PET are principally used to make fiberfill for pillows, ski jackets, sleeping bags and car seats and to make industrial carton strapping. PET also is used as an ingredient in the manufacture of many other plastic commodities.[22] Besides re-manufacture of soft drink base caps, recycled HDPE is being used for plastic lumber (e.g., boat docks and fences), flowerpots, pipes, toys, pails, traffic barrier cones and mud flaps. Mixed plastics are less valuable, but industrial uses are being found in this country and in Europe.[23]

Yard Wastes. Leaves and other yard wastes make up about 24 million tons annually (18 percent) of municipal solid waste composition.[24] Some of these wastes are recycled as compost, which is typically given to residents, sold to commercial users or used directly by municipalities in parks and other public areas. Composting is often popular but is not generally profitable.

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[22] E.g. refrigerator insulation, automobile bumpers, furniture; fiberglass bathtubs, shower stalls, corrugated awnings and swimming pools; appliance handles, power tool housings and automobile parts, including tail-light lenses; floor tiles, paint, paint brushes and kitchen scouring pads.

[23] E.g. floor mats, pallets, grates, manhole covers. See TransAtlantic Perspectives. The German Marshall Fund. Autumn 1987. Number 16. Page 5.

[24] EPA Subtitle D Report, Phase 1. Table 3-1.

Lead-Acid Batteries. About 408,000 tons of lead-acid batteries are discarded by users each year.[25] Most of these batteries are recycled, but some end up in landfills. The batteries are visible, individually large sources of lead and mechanisms to ensure maximum recycling are desirable.

Tires. About 240 million car and truck tires are discarded annually.[26] Something under 20 percent of used tires are sold for re-use as retreads and about 10 percent are reclaimed for other uses. The remainder end up in junkyards or landfills. Tires do not degrade in landfills and can rise to the surface. Exposed tires offer an excellent breeding ground for mosquitoes and rats. Many valuable but poorly marketed uses exist for old tires. These include thermal destruction for energy recovery, use in asphalt pavement, and use in lieu of woodchips for composting.

### 3. Recycling Collection and Processing Programs

The basic options for recycling programs are curbside collection, collection at commercial accounts, recovery at landfills and transfer stations, buy-back centers, drop-off centers, paper drives, and collection and composting of yard wastes.[27]

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[25] EPA Subtitle D Report, Phase II. Page 3-36.

[26] EPA Subtitle D Report, Phase II. Pages 3-19 to 3-20.

### a. Curbside collection

Curbside collection is usually limited to old newspapers, but also includes glass, cans, and sometimes plastics or other items.

WMI operates the nation's largest curbside source separation collection and processing program for the City of San Jose. This program has many of the features shared by other similarly sophisticated curbside operations. Each of 180,000 homes in the city is given three plastics baskets: for newspapers, cans, and glass bottles. Collection of plastics bottles is being added. A special truck with three bins picks up contents of baskets set-out on a weekly collection day. Trucks return to WMI's processing center. The newspapers and aluminum cans are baled. Steel cans and cullet are put into large containers. Periodically, the salvaged items are shipped out to end users or large dealers.

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[27] Unless otherwise noted, the information in this section is based on direct experience of Waste Management, Inc. or upon information provided to WMI by the Franklin Associates, Ltd., Prairie Village, Kansas, and Resource Conservation Consultants, Portland, Oregon.

Programs in other cities vary. Sometimes one basket is used and items are separated at processing facilities. Sometimes bags are used. Almost all curbside programs involve single-family residences. In New Jersey and Oregon, households are required to separate waste. Subsidies are required for all curbside source separation programs involving several different recyclable items.

### b. Collection at commercial accounts

Commercial waste hauling accounts generate large volumes of recyclable materials. Old corrugated containers (OCC) are a common, major item. Other major items are paper, wooden pallets, and bottles and cans from restaurants and other commercial establishments. Used lead-acid batteries and used tires are also collected and hauled through commercial accounts.

Waste management companies can combine hauling of commercial recyclable items with processing facilities. In Berkley, Massachusetts, for example, a WMI company operates a waste paper recycling center that receives paper from WMI commercial and industrial accounts. About 20 to 30 tons of waste paper (primarily OCC) are baled daily and sold through brokers to paper mills.

### c. Recovery at landfills and transfer stations

Recovery of recyclable materials at landfills and transfer stations is readily available to municipalities and private waste contractors. Options include "dump-and sort," drop-off centers, and other salvage operations.

Dump-and-sort: This method uses mixed residential wastes that are dumped on the facility floor. A front-end loader pushes promising portions to a sorting area. Crews pick out items from the floor or from a conveyor line. Corrugated boxes are often collected; other items sometimes collected are glass, ferrous and non-ferrous metals, wood, newspaper and office paper.

Drop-off centers: These are similar to off-site drop-off centers, described below. Individuals often will bring waste and recyclable materials to the landfill or transfer station in a single trip. The landfill at Wellfleet, Massachusetts, for example, has bins for bottles located just a throw away from trash dumpsters.

Salvage operations: Retrieval from the landfill face has long been practiced, but is now restricted in the United States by health and safety regulations. The principal recoverable items are appliances, furniture, OCC, and scrap metals.

### d. Buy-back centers

In this method, residents deliver source-separated material to a center where managers "buy-back" items and them sell them to brokers or directly to end users. Centers have long catered to commercial generators of scrap metal and waste paper.

The typical residential post-consumer buy-back center is limited to aluminum cans, although newspaper, glass and other materials are sometimes added. The city of Burbank, California, for example, operates a buy-back center processing about 4,800 tons of aluminum, glass and newspapers annually. Buy-back centers are less common in states with container deposit laws applicable to aluminum cans, which are the most valuable items brought to centers.

### e. Drop-off centers

Drop-off centers are the most widespread form of residential waste recycling operation. Items are taken to centers and left. Those who drop-off items are not paid. Most centers are limited to newspapers, but some include cans, bottles, OCC, plastics and other items. Champaign, Illinois, for example, operates a drop-off center program that recovers about 916 tons annually of aluminum, corrugated containers, glass, newspapers, office papers, oil and steel cans. That program is subsidized by municipal and county funds. Some centers are staffed; others are not. Some centers have processing equipment; some do not. Drop-off centers have less citizen participation than achieved through curbside collection. They are less expensive to operate, however, and are particularly suited to areas of low population density.

### f. Paper drives

Paper drives are the most familiar method of residential waste recycling. They are usually conducted by waste paper dealers who schedule them and provide truck rolloff containers or bins. Waste haulers also may conduct paper drives, and may simply provide a truck.

### g. Yard ~~wastes~~ collection and composting

About 150 municipalities collect and compost leaves and other yard wastes. Collection is done by vacuum trucks or dump trucks and crews; vegetation may be loose or bagged. Most leaf composting is done in "windrows." Leaves are piled 20 to 25 feet wide, 10 to 12 feet high, and as long as appropriate for the site. Piles are turned one to three times a year. Compost is ready for use within two years. In some instances, unfortunately, compost has not be used and problems may arise with rodents and odors.

### D. Federal Policy Options for Waste Reduction

Among many potential federal policy options for waste reduction are review and revision of federal agency actions to ensure promotion of waste reduction, consideration of deposit requirements for lead-acid batteries and tires, and assignment of solid waste reduction functions to an EPA waste reduction office that would administer waste reduction programs for both solid and hazardous waste.

#### 1. Federal Agency Actions

The Congress should consider adoption of legislation requiring all federal agencies to take such steps as are necessary to ensure that agency actions do not discriminate against use of materials whose use contributes to source reduction or recycling. Agencies could also be directed to use their authorities affirmatively to further use of such materials.

Agency actions could be defined broadly to include any activity authorized, funded or carried out by a federal agency, including agency policies, procedures and regulations. An exception to this requirement could be made for non-discretionary actions that are mandated by federal statute or for discrimination against materials that is justified because those materials are not reasonably available, fail to meet reasonable performance standards, or are only available at an unreasonable price. Agencies could be required to document exceptions to assist the Congress in evaluating any conflicting statutory policies. The EPA could be directed to issue guidelines for implementation of this provision, but such a provision should be effective upon enactment.

A provision of this kind would authorize immediate action by agencies and, in the case of discretionary actions, would avoid the delay associated with actions that must be preceded by rulemaking. The provision would apply to source reduction as well as recycling. For recycling, it would apply not only to use of materials with recycled content but also to use of materials that are more readily recycled (e.g., bottles made of one kind of plastic, rather than two). By encompassing all federal actions and agencies, the provision would make each consider the impact on waste reduction that could result from a wide range of actions. Procurement, discussed below, is an obvious priority. But many other less discussed actions could be significant. For example, it has been said that federal regulations governing interstate transportation of paper discriminate against paper recycling. Such regulatory policy is the kind intended to fall within the scope of this provision.

### 2. Federal procurement

The Congress should consider expressly broadening existing procurement requirements in Section 6002 of RCRA to include procurement that will promote source reduction or promote recycling of material after procurement and use. To date, final guidelines have been issued only for fly ash in cement and concrete[28] and for recovered content in paper.[29] Guidelines have been proposed for ground tire rubber in asphalt.[30] Existing provisions address only the percentage of recovered materials in items to be procured.

The Congress should consider revising Section 6002 (i)(3) of RCRA to clarify that the price of recycled material (or material whose use promotes waste reduction) is not "unreasonable" simply because the price is not the lowest bid. It may also be appropriate to expressly authorize a 5 or 10 percent price differential.

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[28] 48 Fed. Reg. 4230, January 28, 1983.

[29] 52 Fed. Reg. 37293, October 6, 1987.

[30] 51 Fed. Reg. 6201, February 20, 1986.

Section 6002 (c)(1)(C) of RCRA authorizes a decision not to buy recycled items because of price only if the items "are only available at an unreasonable price." This section clearly anticipates that recycled items should be procured at a higher price than alternatives provided that the difference is not so great as to be considered "unreasonable." However, final EPA paper procurement guidelines published on October 6, 1987 state: "unreasonable price" is any price other than the price offered in the lowest responsive bid. . .[31] This policy should be changed.

### 3. Tax Policy

The Department of Treasury, in consultation with the Congressional Budget Office and the Office of Technology Assessment, should be directed to review existing tax policy and to report directly to the Congress on existing provisions of the Internal Revenue Code or implementing policies that discriminate against source reduction or recycling of municipal solid waste.

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[31] Footnote 22, *supra*. Page 37307, Sec. 250.21

Various tax subsidies are thought to favor use of virgin materials over those that are recycled. Provisions for accelerated expensing of investments in timber production are a case in point in respect to paper. Energy subsidies presumably generally discriminate against use of items with recovered content, whose production generally requires less energy than items manufactured from raw materials. Conversely, the Code lacks credits or deductions that would promote investment in waste reduction. The circumstances of the federal deficit do not encourage the creation of new tax subsidies at this time. Nevertheless, an evaluation of the costs and benefits associated with waste reduction tax subsidies would be beneficial. Recycling would benefit enormously, for example, if a tax credit were available for investment in recycling facilities or for some percentage of the expense of purchasing recycled material for re-sale.

### 4. Trade

The Congress should require the Secretary of Commerce and the Special Trade Representative to identify and take action to eliminate any barriers to trade in materials with recycled content or whose trade would otherwise contribute to waste reduction. The Commerce Department should also be directed to give priority to marketing of waste paper and other recyclable exports in trade missions and other marketing programs.

### 5. Foreign Assistance.

The Congress should require the Agency for International Development and the Trade and Development Program to give priority to or provide for recycling or source reduction, to the extent feasible, in making grants. The U.S. representatives to the World Bank and regional development bank should be similarly instructed in respect to the U.S. position on bank lending activities.

### 6. Deposit Requirements and Zoning Preemption

The Congress should consider whether to require a federal deposit on the purchase of lead-acid batteries and tires. Such deposits could help to ensure that these items were returned to dealers rather than disposed of by consumers. Presumably the level of recycling would be enhanced. Before taking such a step, however, it might be wise to evaluate in more detail the cost and value of such programs. The State of New Jersey has enacted a $3.00 deposit on tires and the experience in that state could be evaluated usefully. This matter might also be addressed on an expedited basis in the on-going OTA municipal solid waste project, by the Congressional Research Service, or by the Congressional Budget Office.

Recycling facilities are sometimes opposed by those living nearby. To prevent local zoning ordinances from being used to prevent siting of such facilities, the Congress may wish to give the EPA power to preempt local zoning against such facilities, when it is clearly discriminatory in light of otherwise permitted land use and when the EPA has determined that the facility would enhance recycling and is fully protective of human health and the environment.

### 7. EPA Administration

Various bills pending in Congress propose the creation of an Office of Waste Reduction at EPA to administer programs for reduction of hazardous wastes. It appears likely and desirable that such an office or division will eventually be established. The need for a waste reduction administrative focus applies equally to non-hazardous solid wastes, however, and the Congress should consider merging both functions in the same office.

Several of the programs contemplated for hazardous waste in a waste reduction office make sense for solid waste. Among these and others that the Congress should consider are:

-Maintenance of a data base for waste reduction information.

-Operation of an information clearinghouse on waste reduction that is accessible electronically by the public.

-Administration of a matching state grant program to support planning, pilot collection programs, innovative technologies, and technical assistance.

-Conduct of an aggressive communications program to influence consumer preference in favor of waste reduction.

-Administration of existing waste reduction rulemaking activities (e.g., procurement guidelines) and of any new regulatory programs that might be created (e.g., deposits, zoning preemption).

-Reporting to Congress annually on waste reduction.

# REDUCTION OF MUNICIPAL SOLID WASTE

## Source Reduction and Recycling:

## Overview, Opportunities, Priorities and Federal Policy Initiatives

WASTE MANAGEMENT, INCORPORATED
Submitted to the Senate Environment and
Public Works Committee in Written Testimony
on RCRA Subtitle D

January 8, 1988

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## I

## Reduction of Municipal Solid Waste

### A. Overview

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Waste reduction, used here to mean source reduction and recycling, is now a priority that can be expected to endure. It has been elevated by increased costs of incineration and disposal and by circumspection concerning the number of new incinerators and new landfills that can be subjected to political attention and still be permitted.

Waste reduction is not a panacea for the problems created by waste. EPA's estimate of increased future disposal excludes amounts expected to be recycled. Furthermore, representative municipal waste recycling programs in this country have not exceeded 25 percent disposal volume reduction, including yard wastes, even in cities where programs are heavily subsidized and participation is mandatory. Typical curbside source separation programs in this country are achieving 8 to 10 percent residential disposal reduction.

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[1] U.S. EPA. Resource Conservation and Recovery Act Subtitle D Report to Congress. Phase II, Final Draft. May 28, 1987 ("EPA Subtitle D Report II"). Figure 3-1.

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Perhaps Japan is leading the way.[3] If so, the message is that our country should increase the shares of municipal solid waste that are recycled and incinerated, while preserving landfill capacity for ash and other remaining wastes. Waste Management, Inc. subscribes to this goal and is aggressively expanding its recycling activities.[4] The company is also working to advance public policies that will enhance source reduction and recycling of municipal solid waste. The remainder of this analysis discusses priorities and options in waste reduction and suggests federal policy initiatives that might be adopted by the Congress.

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[2] Allen Hershkowitz and Eugene Salerni. 1987. Garbage Management in Japan: leading the way. INFORM, Inc. New York, New York. Page 5.

[3] INFORM notes, however, that Japan's solid waste management is affected by geography. A "population one-half
(Footnote Continued)

## B. Source Reduction: Opportunities and Priorities

Waste reduction encompasses source reduction and recycling. Source reduction refers to practices that reduce the volume or toxicity of waste before recycling, treatment or disposal. Volume reduction could be achieved by increasing durability (e.g. as has been done for automobile

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(Footnote Continued)
that of the United States living in a land area equal to California, but with only 21% of the land habitable." According to the study, the "nation has only a few years of total landfill capacity left." Dependency on costly imports is also noted as an incentive for recycling.

[4] At the end of 1987, WMI participated as a contractor in approximately 150 municipal solid waste recycling operations. The company plans to increase this number to 400 by the end of 1988. Among these is the largest curbside source separation program in the country, serving 180,000 homes, operated by WMI's Recycle America subsidiary under contract to the City of San Jose, California.

tires) or, consistent with durability, simply by using less material in the manufacture of goods or in other enterprises (e.g. advertising, entertainment and education through electronic media rather than print). Use of fewer disposable goods (e.g. razor blades, diapers) or containers (e.g. paper cups, plastic bottles holding a few screws or nails) would reduce waste volume at the source.[5]

Some changes reducing waste volume, such as making better tires, would appear difficult to contest. Other changes, such as a return to washable cloth diapers, would be resisted by some end users. The morning newspaper may provide information not available on television.

Waste producing options for some goods and services bring more benefits than for others. No simple compelling formula exists for reaching the generally laudable goal of reducing waste volume at the source, when toxicity is not an issue. Consumer education does have a role. We would reduce waste as a nation if people thought twice about buying items with unnecessary packaging and excessive bulk. Governments could help facilitate and support that education and the result might be a very cost effective tool for waste reduction.

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[5] Whether a diaper is a good or a container, or both, could be debated.

Reduction of toxicity at the source is another matter. Among waste items of priority are various special wastes that are sometimes placed in municipal solid waste landfills. These include industrial wastes, small quantity generator (SQG) wastes, and municipal sludge. Household hazardous wastes are also receiving increasing attention.

The SQG wastes, for example, include lead-acid batteries, spent solvents and dry cleaning filtration residues, photographic wastes, waste formaldehyde, and many other waste streams. EPA estimates that about 940,000 metric tons of SQG wastes are generated annually. Most of these wastes are recycled, but the agency estimates that about 5 percent of them are disposed of off-site in solid waste facilities, including municipal landfills.[6]

The toxicity of these special wastes varies widely and their environmental impact in landfills is not well understood. Reduction of their toxicity at the source is desirable, however, and is virtually as broad a problem as the overall issue of hazardous waste source reduction.

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[6] EPA Subtitle D Report, Phase I, pages 3-16 to 3-20.

Consequently source reduction strategies for hazardous wastes in general are applicable to this matter, such as those being developed by EPA,[7] by the Office of Technology Assessment,[8] by various others such as the Environmental Defense Fund,[9] and by the Congress.[10]

Among wastes familiar to the public, special attention may be warranted for paper printed with colored inks containing heavy metals, for batteries, and for some plastics.[11] Paper and paperboard constitute about 50 million tons or more than 37 percent of municipal solid waste disposed of annually, most in municipal landfills.[12] About 10 million tons of the paper wastes are old newspapers. Ink pigments in paper may contain lead, cadmium or chromium. Discarded cylindrical and button-shaped batteries also are sources of cadmium and of mercury and nickel. Plastics may contain cadmium or other metals as stabilizers or as other additives. We lack precise data on the quantity and environmental effects of heavy metals in these sources, although it is clear that human exposure to lead from paper trash is very small in comparison to other sources, especially flaking lead-based paint. However, the Congress could wisely undertake efforts now to facilitate heavy metal reduction in paper, batteries and plastics.

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[7] Minimization of Hazardous Waste. Report to Congress. U.S. EPA. October 1986. EPA/530-SW033.

[8] Serious Reduction of Hazardous Waste for Pollution Prevention and Industrial Efficiency. OTA. September 1986. OTA-ITE317. Also From Pollution to Prevention: A Progress Report on Waste Reduction. OTA. June 1987. OTA-ITE-347.

[9] Approaches to Source Reduction of Hazardous Waste: Practical Guidance from Existing Policies & Programs. Environmental Defense Fund. 1986.

[10] E.g. H.R. 2800, the Hazardous Waste Reduction Act, introduced by Rep. Howard Wolpe and others in June 1987.

[11] Municipal Waste Combustion Study. Report to Congress. U.S. EPA. June 1987. Pages 37 and 38.

[12] Guidelines for Recovered Materials Content in Paper Products Procured by the Federal Government. U.S. EPA, 52 Fed. Reg. 37294, October 6, 1987.

## C. Recycling: Opportunities and Priorities

### 1. Introduction

Recycling refers to practices providing for re-use of materials that have been generated and that would be abandoned if those practices were not undertaken.

Post-consumer discards currently recycled in the United States include old newspapers, aluminum cans, steel cans, glass bottles, plastic bottles, yard wastes, lead-acid batteries and used tires.

Recycling can be impeded by technical limits in re-use and lower value of goods or containers made of several materials or containing toxic compounds. Paper is often impregnated with plastics, for example, and ink pigments may contain heavy metals. Soft drink bottles commonly have high-density polyethylene bases and different polyethylene terephthalate tops, complicating recycling. Recycling would be enhanced by modifying manufacture to minimize such problems and by innovation in technologies for separation of different materials.

The ultimate governor of recycling activities is the marketplace. Some recycling is currently profitable. Old corrugated containers, for example, bring a price well above recycling costs. Recycling programs for residential aluminum can discards operate without subsidy, as do current old newspaper and old corrugated recycling programs. Other items, however, are in less demand. Steel cans, for example, traditionally have not been profitable to recycle. Recycled newspapers, although in demand now, have varied greatly in value, and sometimes has been collected for recycling only to be landfilled when buyers cannot be found. More favored treatment by government (subsidies and procurement requirements for recyclable materials; elimination of subsidies for virgin materials that compete with recyclable materials) is apparently necessary to provide a high level of recycling over the long-term. Such stimulation of demand is particularly critical in light of the rising supply of recyclable materials that new collection and processing programs will generate.

## 2. Principal Recycled Items in the United States[13]

Paper. Approximately 15 million tons of post-consumer waste paper are recycled each year, in addition to 7 million tons of industrial paper waste. Overall, about 28 percent of paper is recycled. About 18 million tons of this total are used domestically and 4 million tons are exported. Another 50 million tons of paper and paper products are disposed of annually, constituting about 35 percent of all municipal solid waste discards.[14]

Waste paper is mixed with water at paper mills in a tank with rotating beaters on the bottom. The paper fibers separate and form a slurry, similar to virgin wood pulp. The pulp is then cleaned, washed and sometimes "deinked." Recycled paper and paper products cannot be distinguished from virgin materials by typical users, although recycled fibers tend to be shorter and paper made of them tends to be less strong and more opaque than virgin fiber paper. Recycled paper that has not been deinked can be made into gray paperboard for uses such as cereal boxes or writing pad bases. Lower quality paperboard from mixed paper wastes is used in wallboard.

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[13] Unless otherwise noted, statistics in this section are from the Multi-Material Recycling Manual. Revised 1987. Keep America Beautiful, Inc. Most of the items in the section are post-consumer residential discards. Corrugated boxes, lead-acid batteries, and tires are used by residential consumers, but are typically collected for recycling from commercial accounts.

[14] EPA Paper Procurement Guidelines, footnote 12 supra, page 37294.

Aluminum Cans. In 1981, more than 1 billion pounds of aluminum (24.8 billion cans) were recycled, exceeding 50 percent of the cans produced. By the 1990's, the aluminum industry expects that 75 percent of aluminum beverage cans will be recycled into new cans or into other aluminum products. Aluminum is very profitable to recycle, selling at 10 times the price of paper.

Steel Cans. Steel scrap accounts for about 50 percent of raw materials used to make new steel. About half of the scrap used is generated within steel mills. The other half, about 30 million tons, is purchased from outside sources. Half of that amount, is post-consumer scrap, including automobiles, appliances and cans. Only very small percentages of steel cans were recycled until recently, but can recycling is now increasing.

Glass Bottles. About 2.5 billion pounds of glass (5 billion containers) are collected annually and remelted with raw materials to make new glass containers. This is four to five times more than the amount recycled 10 years ago. Used glass containers (cullet) are most profitably employed as a substitute for raw materials in making new containers. Fiberglass and other products, however, are also made. Raw materials for glass manufacture are abundant (sand, soda ash and limestone), but energy savings are substantial when cullet is used. Cullet recycling is more profitable if different colors of glass are not mixed (clear or flint, amber, and green).

Plastic Bottles. Plastic soft drink bottles and milk bottles make-up the bulk of post-consumer plastics recycling. About 20 percent of soft drink bottles were recycled as of 1984. The bottles are made of polyethylene terephthalate (PET) and, sometimes, a high-density polyethylene (HDPE) base. The Plastics Recycling Institute in New Jersey operates a small plant where a process for separating PET from HDPE has been demonstrated. Milk bottles are made of HDPE.

Plastics from recycled PET are principally used to make fiberfill for pillows, ski jackets, sleeping bags and car seats and to make industrial carton strapping. PET also is used as an ingredient in the manufacture of many other plastic commodities.[15] Besides re-manufacture of soft drink base caps, recycled HDPE is being used for plastic lumber (e.g. boat docks and fences), flowerpots, pipes, toys, pails, traffic barrier cones and mud flaps. Mixed plastics are less valuable, but industrial uses are being found in this country and in Europe.[16]

Yard Wastes. Leaves and other yard wastes make up about 24 million tons annually (18 percent) of municipal solid waste composition.[17] Some of these wastes are recycled as compost, which is typically given to residents, sold to commercial users or used directly by municipalities in parks and other public areas. Composting is often popular but is not generally profitable.

Lead-Acid Batteries. About 408,000 tons of lead-acid batteries are discarded by users each year.[18] Most of these batteries are recycled, but some end up in landfills. The batteries are visible, individually large sources of lead and mechanisms to ensure maximum recycling are desirable.

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[15] E.g. refrigerator insulation, automobile bumpers, furniture; fiberglass bathtubs, shower stalls, corrugated awnings and swimming pools; appliance handles, power tool housings and automobile parts, including tail-light lenses; floor tiles, paint, paint brushes and kitchen scouring pads.

[16] E.g. floor mats, pallets, grates, manhole covers. *See* TransAtlantic Perspectives. The German Marshall Fund. Autumn 1987. Number 16. Page 5.

[17] EPA Subtitle D Report, Phase 1. Table 3-1.

[18] EPA Subtitle D Report, Phase II. Page 3-36.

Tires. About 240 million car and truck tires are discarded annually.[19] Something under 20 percent of used tires are sold for re-use as retreads and about 10 percent are reclaimed for other uses. The remainder end up in junkyards or landfills. Tires do not degrade in landfills and can rise to the surface. Exposed tires offer an excellent breeding ground for mosquitoes and rats. Many valuable but poorly marketed uses exist for old tires. These include thermal destruction for energy recovery, use in asphalt pavement, and use in lieu of woodchips for composting.

### 3. Recycling Collection and Processing Programs

The basic options for recycling programs are curbside collection, collection at commercial accounts, recovery at landfills and transfer stations, buy-back centers, drop-off centers, paper drives, and collection and composting of yard wastes.[20]

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[19] EPA Subtitle D Report, Phase II. Pages 3-19 to 3-20.

a. Curbside collection

Curbside collection is usually limited to old newspapers, but also includes glass, cans, and sometimes plastics or other items.

WMI operates the nation's largest curbside source separation collection and processing program for the City of San Jose. This program has many of the features shared by other similarly sophisticated curbside operations. Each of 180,000 homes in the city is given three plastics baskets: for newspapers, cans, and glass bottles. Collection of plastics bottles is being added. A special truck with three bins picks up contents of baskets set-out on a weekly collection day. Trucks return to WMI's processing center. The newspapers and aluminum cans are baled. Steel cans and cullet are put into large containers. Periodically, the salvaged items are shipped out to end users or large dealers.

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[20] Unless otherwise noted, the information in this section is based on direct experience of Waste Management, Inc. or upon information provided to WMI by the Franklin Associates, Ltd., Prairie Village, Kansas, and Resource Conservation Consultants, Portland, Oregon.

Programs in other cities vary. Sometimes one basket is used and items are separated at processing facilities. Sometimes bags are used. Almost all curbside programs involve single-family residences. In New Jersey and Oregon, households are required to separate waste. Subsidies are required for all curbside source separation programs involving several different recyclable items.

### b. Collection at commercial accounts

Commercial waste hauling accounts generate large volumes of recyclable materials. Old corrugated containers (OCC) are a common, major item. Other major items are paper, wooden pallets, and bottles and cans from restaurants and other commercial establishments. Used lead-acid batteries and used tires are also collected and hauled through commercial accounts.

Waste management companies can combine hauling of commercial recyclable items with processing facilities. In Berkley, Massachusetts, for example, a WMI company operates a waste paper recycling center that receives paper from WMI commercial and industrial accounts. About 20 to 30 tons of waste paper (primarily OCC) are baled daily and sold through brokers to paper mills.

### c. Recovery at landfills and transfer stations

Recovery of recyclable materials at landfills and transfer stations is readily available to municipalities and private waste contractors. Options include "dump-and sort," drop-off centers, and other salvage operations.

Dump-and-sort: This method uses mixed residential wastes that are dumped on the facility floor. A front-end loader pushes promising portions to a sorting area. Crews pick out items from the floor or from a conveyor line. Corrugated boxes are often collected; other items sometimes collected are glass, ferrous and non-ferrous metals, wood, newspaper and office paper.

Drop-off centers: These are similar to off-site drop-off centers, described below. Individuals often will bring waste and recyclable materials to the landfill or transfer station in a single trip. The landfill at Wellfleet, Massachusetts, for example, has bins for bottles located just a throw away from trash dumpsters.

Salvage operations: Retrieval from the landfill face has long been practiced, but is now restricted in the United States by health and safety regulations. The principal recoverable items are appliances, furniture, OCC, and scrap metals.

d. Buy-back centers

In this method, residents deliver source-separated material to a center where managers "buy-back" items and them sell them to brokers or directly to end users. Centers have long catered to commercial generators of scrap metal and waste paper.

The typical residential post-consumer buy-back center is limited to aluminum cans, although newspaper, glass and other materials are sometimes added. The city of Burbank, California, for example, operates a buy-back center processing about 4,800 tons of aluminum, glass and newspapers annually. Buy-back centers are less common in states with container deposit laws applicable to aluminum cans, which are the most valuable items brought to centers.

e. Drop-off centers

Drop-off centers are the most widespread form of residential waste recycling operation. Items are taken to centers and left. Those who drop-off items are not paid. Most centers are limited to newspapers, but some include cans, bottles, OCC, plastics and other items. Champaign, Illinois, for example, operates a drop-off center program that recovers about 916 tons annually of aluminum, corrugated containers, glass, newspapers, office papers, oil and steel cans. That program is subsidized by municipal and county funds. Some centers are staffed; others are not. Some centers have processing equipment; some do not. Drop-off centers have less citizen participation than achieved through curbside collection. They are less expensive to operate, however, and are particularly suited to areas of low population density.

### f. Paper drives

Paper drives are the most familiar method of residential waste recycling. They are usually conducted by waste paper dealers who schedule them and provide truck rolloff containers or bins. Waste haulers also may conduct paper drives, and may simply provide a truck.

### g. Yard wastes collection and composting

About 150 municipalities collect and compost leaves and other yard wastes. Collection is done by vacuum trucks or dump trucks and crews; vegetation may be loose or bagged. Most leaf composting is done in "windrows." Leaves are piled 20 to 25 feet wide, 10 to 12 feet high, and as long as appropriate for the site. Piles are turned one to three times a year. Compost is ready for use within two years.

In some instances, unfortunately, compost has not been used and problems may arise with rodents and odors.

## D. Federal Policy Options for Waste Reduction

Among many potential federal policy options for waste reduction are review and revision of federal agency actions to ensure promotion of waste reduction, consideration of deposit requirements for lead-acid batteries and tires, and assignment of solid waste reduction functions to an EPA waste reduction office that would administer waste reduction programs for both solid and hazardous waste.

### 1. Federal Agency Actions

The Congress should consider adoption of legislation requiring all federal agencies to take such steps as are necessary to ensure that agency actions do not discriminate against use of materials whose use contributes to source reduction or recycling. Agencies could also be directed to use their authorities affirmatively to further use of such materials.

Agency actions could be defined broadly to include any activity authorized, funded or carried out by a federal agency, including agency policies, procedures and regulations. An exception to this requirement could be made for non-discretionary actions that are mandated by federal statute or for discrimination against materials that is justified because those materials are not reasonably available, fail to meet reasonable performance standards, or are only available at an unreasonable price. Agencies could be required to document exceptions to assist the Congress in evaluating any conflicting statutory policies. The EPA could be directed to issue guidelines for implementation of this provision, but such a provision should be effective upon enactment.

A provision of this kind would authorize immediate action by agencies and, in the case of discretionary actions, would avoid the delay associated with actions that must be preceded by rulemaking. The provision would apply to source reduction as well as recycling. For recycling, it would apply not only to use of materials with recycled content but also to use of materials that are more readily recycled (e.g. bottles made of one kind of plastic, rather than two). By encompassing all federal actions and agencies the provision would make each consider the impact on waste reduction that could result from a wide range of actions. Procurement, discussed below, is an obvious priority. But many other less discussed actions could be significant. For example, it has been said that federal regulations governing interstate transportation of paper discriminate against paper recycling. Such regulatory policy is of the kind intended to fall within the scope of this provision.

## 2. Federal procurement

The Congress should consider expressly broadening existing procurement requirements in Section 6002 of RCRA to include procurement that will promote source reduction or promote recycling of material after procurement and use. To date, final guidelines have been issued only for fly ash in cement and concrete[21] and for recovered content in paper.[22] Guidelines have been proposed for ground tire rubber in asphalt.[23] Existing provisions address only the percentage of recovered materials in items to be procured.

The Congress should consider revising Section 6002 (i)(3) of RCRA to clarify that the price of recycled material (or material whose use promotes waste reduction) is not "unreasonable" simply because the price is not the lowest bid. It may also be appropriate to expressly authorize a 5 or 10 percent price differential production are a case in point in respect to paper. Energy subsidies presumably generally discriminate against use of items with recovered content, whose production generally requires less energy than items manufactured from raw materials. Conversely, the Code lacks credits or deductions that would promote investment in waste reduction. The circumstances of the federal deficit do not encourage the creation of new tax subsidies at this time. Nevertheless, an evaluation of the costs and benefits associated with waste reduction tax subsidies would be beneficial. Recycling would benefit enormously, for example, if a tax credit were available for investment in recycling facilities or for some percentage of the expense of purchasing recycled material for re-sale.

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[21] 48 Fed. Reg. 4230, January 28, 1983.

[22] 52 Fed. Reg. 37293, October 6, 1987.

[23] 51 Fed. Reg. 6201, February 20, 1986.

### 4. Trade.

The Congress should require the Secretary of Commerce and the Special Trade Representative to identify and take action to eliminate any barriers to trade in materials with recycled content or whose trade would otherwise contribute to waste reduction. The Commerce Department should also be directed to give priority to marketing of waste paper and other recyclable exports in trade missions and other marketing programs.

5. Foreign Assistance.

The Congress should require the Agency for International Development and the Trade and Development Program to give priority to or provide for recycling or source reduction, to the extent feasible, in making grants. The U.S. representatives to the World Bank and regional development bank should be similarly instructed in respect to the U.S. position on bank lending activities.

6. Deposit Requirements and Zoning Preemption

The Congress should consider whether to require a federal deposit on the purchase of lead-acid batteries and tires. Such deposits could help to ensure that these items were returned to dealers rather than disposed of by consumers. Presumably the level of recycling would be enhanced. Before taking such a step, however, it might be wise to evaluate in more detail the cost and value of such programs. The State of New Jersey has enacted a $3.00 deposit on tires and the experience in that state could be evaluated usefully. This matter might also be addressed on an expedited basis in the on-going OTA municipal solid waste project, by the Congressional Research Service, or by the Congressional Budget Office.

Recycling facilities are sometimes opposed by those living nearby. To prevent local zoning ordinances from being used to prevent siting of such facilities, the Congress may wish to give the EPA power to preempt local zoning against such facilities, when it is clearly discriminatory in light of otherwise permitted land use and when the EPA has determined that the facility would enhance recycling and is fully protective of human health and the environment.

## 7. EPA Administration

Various bills pending in Congress propose the creation of an Office of Waste Reduction at EPA to administer programs for reduction of hazardous wastes. It appears likely and desirable that such an office or division will eventually be established. The need for a waste reduction administrative focus applies equally to non-hazardous solid wastes, however, and the Congress should consider merging both functions in the same office.

Several of the programs contemplated for hazardous waste in a waste reduction office make sense for solid waste. Among these and others that the Congress should consider are:

-Maintenance of a data base for waste reduction information.

-Operation of an information clearinghouse on waste reduction that is accessible electronically by the public.

-Administration of a matching state grant program to support planning, pilot collection programs, innovative technologies, and technical assistance.

-Conduct of an aggressive communications program to influence consumer preference in favor of waste reduction.

-Administration of existing waste reduction rulemaking activities (e.g. procurement guidelines) and of any new regulatory programs that might be created (e.g. deposits, zoning preemption).

-Reporting to Congress annually on waste reduction.

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